The ETIOLOGY and STABILITY of PROBLEM GAMBLING

Dr. Robert Williams
University of Lethbridge, Alberta, Canada

&

Dr. Rachel Volberg
University of Massachusetts, USA

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Context

- Many cross-sectional studies examining correlates of problem gambling
- 30+ small scale longitudinal studies of problem gambling
- Only a handful of large scale multiyear longitudinal studies
Leisure, Lifestyle, Lifecycle Project (LLLP)

- Funded by Alberta Gambling Research Institute ($2.3 million)
- 2006 – 2011
- 1327 Alberta adults from 4 regions of Alberta approximating the Alberta population
  - 29% oversampled for ‘at risk’ characteristics
- 4 comprehensive assessments 17-22 months apart
  - Very similar questionnaire to QLS
  - 2 – 3 hours per assessment
  - Telephone interview (Assessment 1) + self-administered (online &/or paper & pencil)
- Dependent variable: score of 5 or higher on Canadian Problem Gambling Index (CPGI) (Ferris & Wynne, 2001)
- 76.2% retention rate
Quinte Longitudinal Study (QLS)

- Funded by Ontario Problem Gambling Research Centre ($3.1 million)
- 2006 – 2011
- 4123 Ontario adults from Quinte Region in southeastern Ontario, Canada
  - 26% oversampled for ‘at risk’ characteristics
- 5 comprehensive annual assessments
  - Demographics, gambling, physical health, mental health, substance use, stressors, personal values, social functioning, personality, leisure activity, intelligence (135 variables)
  - 0.5 – 1.5 hrs per assessment
  - self-administered online or via paper & pencil
- Dependent variable: problem or pathological gambler on Problem and Pathological Gambling Measure (PPGM) (Williams & Volberg, 2014)
- 93.9% retention rate
QLS & LLLP Research Questions

1. What is the natural stability of gambling and problem gambling over time?

2. What variables best predict future problem gambling?

3. What etiological model of problem gambling derives from these findings?

4. What are the implications of these results for the prevention of problem gambling?
Stability of Non-Gambling over Time (QLS)

- N = 280; each row represents an individual

- About 50% continued to be Non-Gamblers through 5 years: "moderately stable category"

- Not uncommon to transition to Recreational Gambling, but most revert back to Non-Gambling

- Very uncommon to transition to At Risk or Problem Gambling (only 1% became Problem Gamblers)
Stability of Recreational Gambling over Time (QLS)

<table>
<thead>
<tr>
<th>Assessment 1</th>
<th>Assessment 2</th>
<th>Assessment 3</th>
<th>Assessment 4</th>
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<tbody>
<tr>
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- N = 2786; each row represents 25 individuals
- 70% continued to be Recreational Gamblers throughout the 5 years: “stable category”
- 13% transitioned into Non-Gambling and 10% into At Risk Gambling
- 5% became Problem Gamblers at some point
Stability of At Risk Gambling over Time (QLS)

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- **N = 481; each row represents an individual**

- 1 Year the modal duration. Only 7% continued to be At Risk Gamblers throughout the 5 years. Most transitioned back into Recreational Gambling: **“unstable category”**

- 15% became Problem Gamblers at some point
Stability of Problem Gambling over Time (QLS)

- N = 236; each row represents an individual

- 1 year the modal duration, occurring in about 51% of people. Only 19% continued to be Problem Gamblers throughout the 5 years: “unstable category”

- Recovery rates high, but relapse rates also high (40% relapse within 3 years after recovery)
Stability of Pathological Gambling over Time (QLS)

- N = 88; each row represents an individual

- 64% have durations between 2 – 5 years, but only 30% Disordered Gamblers throughout the 5 years: “moderately unstable category”

- Recovery rates lower than problem gambling and relapse rates higher than problem gambling
Examined strength and consistency of variables as predictors of future problem gambling across:

- **Time Periods**
  - 1 time period: $A_1 \rightarrow A_2; \ A_2 \rightarrow A_3; \ A_3 \rightarrow A_4; \ A_4 \rightarrow A_5$
  - 2 time periods: $A_1 \rightarrow A_3; \ A_2 \rightarrow A_4; \ A_3 \rightarrow A_5$
  - 3 time periods: $A_1 \rightarrow A_4; \ A_2 \rightarrow A_5$
  - 4 time periods: $A_1 \rightarrow A_5$

- **and Data Sets**
  - QLS and LLLP
Univariate Prediction of Future Problem Gambling

- No single variable overwhelmingly present in future problem gamblers and absent in future non-problem gamblers.

- Rather, *many different* variables involved, each increasing risk to some extent and present to differing degrees in future problem gamblers.

- However, certain *categories* of variables more predictive and stronger variables within categories.
Gambling-Related Variables is category most robustly predictive of future problem gambling

- Being **At Risk or Problem Gambler** single best predictor of future problem gambling

- **Intensity of gambling involvement** $2^{nd}$ best predictor (i.e., total gambling expenditure, overall frequency, total time spent, number of formats played)

- Higher frequency of involvement in continuous forms (i.e., EGMs, casino table games, instant lotteries) $3^{rd}$ best predictor

- Other strong predictors: big win in past year; gambling a top leisure pursuit; family or friends regular or problem gamblers; gambling ‘to escape’ or ‘to win money’; more gambling fallacies; Internet gambling; proximity to EGM venues
Univariate Prediction of Future Problem Gambling

- **Personality** next most important category predictive of future problem gambling
  - **Impulsivity** strongest personality predictor, and one of the strongest predictors across all categories
  - Other fairly strong personality predictors:
    - **Vulnerability** (to stress)
    - **Lower agreeableness**
    - **Lower conscientiousness**
Univariate Prediction of Future Problem Gambling

- **Mental Health** next most important category predictive of future problem gambling
  - **Depression** strongest predictor in this category
  - Other fairly strong mental health predictors:
    - Anxiety-related disorders
    - Substance abuse
    - Having a behavioural addiction
    - Lifetime history of mental health problems or addiction to drugs/alcohol
Univariate Prediction of Future Problem Gambling

Other fairly strong and/or consistent predictors:

- More stressful events in past year
- Lower IQ
- Lower educational attainment
- Lower happiness
- Higher stress
- History of child abuse
- Antisocial traits
- Physical disability and/or poorer physical health
Multivariate Prediction of Future Problem Gambling

- Many univariate predictors not significant in multivariate prediction due to overlapping predictive power

- Almost all multivariate predictors were gambling-related:
  - Being **At Risk or Problem Gambler** (strongest predictor)
  - **Big win in past year**
  - **Frequency of EGM and/or casino table game participation**
  - **Family members being regular gamblers**
  - **Close friends/family with gambling problems**
  - **Gambling to escape or win money**
  - **More gambling fallacies**
  - **Gambling a top leisure pursuit**
  - **Engaging in larger number of gambling formats**
Only non-gambling related variables robustly adding multivariate predictive power were:

- Impulsivity
- Having a behavioural addiction (e.g., shopping, sex, video games, exercise)
- Lifetime history of addiction to drugs or alcohol
- Family history of mental health problems
Almost all gambling-related variables predictive of first onset problem gambling. Exceptions being proximity to EGM venues and being At Risk or Problem Gambler, which were more predictive of continuation and relapse.

Several personality, mental health, stress-related, cognitive, and physical health variables also implicated in first onset problem gambling. However, in general, personality, mental health, stress-related, cognitive, and physical health variables more strongly implicated in problem gambling continuation and relapse.
Most predictors create risk for all future time periods, rather than some creating imminent risk and others creating distant risk.

However, a few variables almost always precede problem gambling and are stronger predictors of imminent problem gambling than others:

- **Intensive gambling involvement** the strongest and most consistent predictor

Other strong and consistent predictors of imminent problem gambling:

- Having big win in past year
- Gambling being a favourite leisure pursuit
- Impulsivity
- Depression
All problem gamblers asked “What do you think caused your gambling problems?”

Only limited overlap between these open-ended reports and objective predictors.

Most problem gamblers identified singular cause, whereas empirical results indicate many variables.

Self-reported causes focused on psychological, motivational, and social influences (e.g., gambling to escape or to win money, boredom, stress/depression, social pressure to gamble).

Although self-reported causes validated by empirical results, problem gamblers less aware of broader contextual determinants: past history of gambling problems, family history of gambling, engagement in continuous forms, big wins, gambling fallacies, personality, substance abuse, mental health problems.
Etiological Model

• Biopsychosocial etiology with multiple risk and protective factors

• Particular pattern of risk and protective factors different between problem gamblers, but many of the strongest risk factors tend to be fairly prevalent
Etiological Model: Heavy Gambling
Final Common Pathway

- High levels of gambling expenditure, frequency, time, number of formats, and/or involvement in continuous forms creates greatest direct risk for problem gambling, as it immediately precedes problem gambling in large majority of cases.

- Heavy gambling also increases likelihood of big win, which is an important independent risk factor for problem gambling.
Etiological Model: Recovery & Relapse Common

- Recovery from problem gambling common, as modal problem gambling episode duration is only one year.

- Relapse back to problem gambling also common, with past history of problem gambling being strongest predictor of relapse and problem gambling continuation as well as mental health problems, substance use/abuse, stress, impulsivity, and physical health problems.
Etiological Model

Color indicates risk (yellow) or high risk (orange)
Arrow width indicates strength of the relationship
Note that some arrows are bidirectional

Massachusetts Gambling Impact Cohort MAGIC

- Funded by Massachusetts Gaming Commission ($5.3 million)
- PIs: Rachel Volberg (UMass), Robert Williams (ULeth), Ed Stanek (UMass)
- Survey Company: National Opinion Research Centre (NORC) at University of Chicago
- 2013/2014 to present (currently in the midst of WAVE 3)
- 3141 Massachusetts adults
  - 53% oversampled for ‘at risk’ characteristics (current problem gambler or at risk gambler; expend >$1200 annually; gambling weekly; military service)
Massachusetts Gambling Impact Cohort (MAGIC)

- Annual self-administered assessments
  - online or via paper & pencil

- Comprehensive coverage of variables etiologically related to problem gambling (beginning in Wave 3)
  - Demographics, gambling, physical health, mental health, substance use, stressors, personal values, social functioning, personality, intelligence
  - 30 minutes median time

- Dependent Variable: problem or pathological gambler on Problem and Pathological Gambling Measure (PPGM) (Williams & Volberg, 2014)
MAGIC Advantages over Previous Longitudinal Studies

1. No prior major longitudinal studies of gambling in U.S.

2. Much higher change in gambling availability occurring during the course of the study (4 new casinos)

3. Prior longitudinal experience of Research Team allows for:
   - Improved sampling (53% high-risk oversampling)
   - More robust and efficient questionnaire, with a focus on etiological factors implicated in prior studies
   - Improved retention

4. Potentially longer time span (7+ years)

5. Synergistic with coincidental Social and Economic Impacts of Gambling in Massachusetts (SEIGMA) study (2013 – present)
For More Information about MAGIC

- [http://umwebdev.oit.umass.edu/macohort/](http://umwebdev.oit.umass.edu/macohort/)