The Alberta Cohorts of Gambling Behaviors
An Update

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*DISCLOSURE: Research grant from the Alberta Gambling Research Institute’s University Consortium
Objectives

1. Experience with recruitment & retention of five cohorts

2. Patterns of continuity & discontinuity in gambling behaviors as well as patterns of recovery from problems?

3. Biopsychosocial variables (risks & resilience) predicting the spectrum of gambling behaviors from responsible to problematic?
Age Groups – accelerated longitudinal design

Baseline

- 13 to 15
- 18 to 20
- 23 to 25
- 43 to 45
- 63 to 65

Time 4

- 18 to 20
- 23 to 25
- 28 to 30
- 48 to 50
- 68 to 70

Criteria

- Initiation age 18
- High risk
- Family & job responsibilities
- Mid adulthood & parental values
- Peri-retirement
LLLP
(Leisure, Lifestyle, Lifecycle)

Sampling
N = 1808

Urban-Rural?
Cities > 1 million
50-100,000
Recruitment & Retention

In Alberta, 82% of adults gambled in previous year!

Low prevalence of problem gambling requires oversampling of “at-risk” (>70th percentile gambling expenditure/frequency)

- **Time 1** – n= 1808 (tel & face-to-face) Feb-Oct 06
- **Time 2** – n = 1495 83% (online) Nov 07- Jun 08
- **Time 3** – n = 1316 74% (online) July 09-Mar 10
- **Time 4** – n = 1343 75.1% (online) Feb –Oct 11
  (313 adolescents, 1030 adults)

- **Blood & Saliva** – n = 679
  - Gen population bootstrap weights for age, sex, geography & high frequency; Deceased=20
Quinte study: 70 km radius around Belleville, Ont
Pop 50,000 (N=4121; Retention R 90.4% over 5 years)

Note. Charitable bingo events held once per week at other community venues are not shown.
*Is untreated addiction always “progressive and fatal” (progression theory)?
*Are more severe gamblers less likely to improve than less severe ones (selective stability)?
DEVELOPING AN ETIOLOGICAL MODEL

1. Coordination of the QLS & LLLP analyses
   • 2 separate analyses, but using same analytic approach
   • Single etiological model that works for both data

2. Dependent variables, i.e. Problem Gambling
   • LLLP  CPGI* 5+ (N=43)
   • QLS    PPGM** (N=134)  Total N=177

3. Reducing # of IVs (from ~100) by identifying IVs predictors of PG in the subsequent year in both data sets

* Canadian Problem Gambling Index – False -ve
** Problem & Pathological Gambling Measure – False +/-ve (W & V)
## Variables Best Predicting Future Problem Gambling

(134 PPGM PGs in QLS & 43 CPGI 5+ PGs in LLLP)

<table>
<thead>
<tr>
<th>MENTAL HEALTH PROBLEMS IN PAST YEAR</th>
<th>QLS</th>
<th>LLLP</th>
</tr>
</thead>
<tbody>
<tr>
<td>Any Mental Health Problem</td>
<td>🔄️</td>
<td>NA</td>
</tr>
<tr>
<td>Major Depression</td>
<td>🔄️</td>
<td>🔄️</td>
</tr>
<tr>
<td>Manic Episode</td>
<td>🔄️</td>
<td>🔄️</td>
</tr>
<tr>
<td>Generalized Anxiety</td>
<td>🔄️</td>
<td>🔄️</td>
</tr>
<tr>
<td>Panic Attacks</td>
<td>🔄️</td>
<td>🔄️</td>
</tr>
<tr>
<td>Obsessive Compulsive Disorder</td>
<td>🔄️</td>
<td>🔄️</td>
</tr>
<tr>
<td>Bulimia</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Schizophrenia and/or Delusional Disorder</td>
<td>🔄️</td>
<td></td>
</tr>
<tr>
<td>Borderline Features (PAI)</td>
<td>NA</td>
<td></td>
</tr>
<tr>
<td>Paranoia (PAI)</td>
<td>NA</td>
<td>🔄️</td>
</tr>
<tr>
<td>ADHD</td>
<td></td>
<td>🔄️</td>
</tr>
</tbody>
</table>
Robust Variables Best Predicting Future Problem Gambling
(Adult N=177: Correlate; Cause & Consequence)

- Having a current mental health problem
  - Particularly mood and anxiety problems

- Family history of gambling
  - Parental/sibling regular gambling and/or problem gambling
  - Gambling with family prior to 19

- Gambling involvement
  - Number of formats engaged in
  - Frequency & expenditure of play
  - Big gambling win (past year and/or prior to 19)
  - Membership in gambling rewards program

- Motivation for gambling: to escape; win money
Other Important Variables

- Lifetime & Past Year **History of drug/alcohol addiction**
- Ethnocultural background
- Less education
- Lower income
- Age? Sex? Personality: impulsivity, antisocial?
- Cross sectional vs. longitudinal studies
- Adolescent sample? demographic or impulsivity
Relevance To Model Development

Availability; gambling fallacies; economic need; cultural tradition; personality (e.g., impulsivity, excitement seeking); personal values; biological predisposition

Stress; biological predisposition to mental health problems; upbringing; trauma

Heavy Gambling Involvement

Mental Health Problems

Problem Gambling
Descriptive vs. Structural Analyses

- **Longitudinal structural equation models** postulate causal relationships among & between measured “manifest” variables (squares) & unmeasured “latent” variables (circles).
- **Causation is depicted by directional arrows** between squares & or circles.
- **Links estimate the strength of the influence** across the entire sample.
- The model is a **hypothetical structure** (a theory) with caveats.
- Debate? **Categories** (focus on PG) - factor/descriptive Vs. **Dimensions** (sample PG, non PG) - structural
Structural Models of Gambling & Problem Gambling

[Diagram of structural models with various nodes and arrows indicating relationships]

Appears OK. ML CHISQ
Group Fit: 1542.02
Fits: 1542.077 [102.000, 390.039]
Probability: 0.000
AIC: 1338.017 [102.000, 390.039]
RMSEA: 0.059 [0.000, 0.444]
Degrees of freedom: 102
Free parameters: 33
Observed statistics: 1,356
Constraints: 0
Descriptive vs. Structural Analyses

Insights:

- In the total sample, level of gambling behaviors was relatively stable across the waves, but other variables like Mental Health affected the propensity to become Problem Gambler.

- No particular concurrent “Mental Disorder” was differentially associated with problem gambling. The association is with the cumulation of one or more disorders “Mental Distress”.