Comparing Longitudinal Studies of Gambling: Methods & Findings

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What do we know about risk factors for PG?

- Vast majority of research carried out on PG risk factors has involved cross-sectional surveys

- PG status at a single point in time statistically correlated with behaviors & characteristics assessed at the same time

- Cannot resolve the “chicken and egg” problem
  - Does PG precede other disorders?
  - Do other disorders precede PG?
  - Or does one underlying condition account for both?
The changing face of problem gambling

- Early population surveys in numerous jurisdictions identified the following risk factors:
  - Male gender
  - Age under 30
  - Low income
  - Single marital status
  - Low occupational status
  - Less formal education
  - Residing in large cities

- “Feminization of problem gambling”

- “Bimodal groups”
  - African Americans in US
  - Pacific Islanders in New Zealand
  - Eastern European immigrants in Sweden

Abbott et al., 2004; Productivity Commission, 1999
Prevalence surveys provide ‘snapshots’ of a dynamic process.

- **Inflow**
  - New Cases
  - Relapsing Cases

- **Problem Gambling Prevalence**

- **Outflow**
  - Recovery
  - Remission
  - Treatment
  - “Natural Selection”
Growing number of longitudinal studies conducted internationally

<table>
<thead>
<tr>
<th>Study Population</th>
<th>Waves</th>
<th>Jurisdiction</th>
<th>Researchers</th>
</tr>
</thead>
<tbody>
<tr>
<td>Children</td>
<td>2</td>
<td>Canada</td>
<td>Pagani, Derevensky &amp; Japel, 2009</td>
</tr>
<tr>
<td>Adolescents &amp; parents</td>
<td>2</td>
<td>Canada</td>
<td>Dane et al, 2008</td>
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<tr>
<td>Adolescents</td>
<td>6</td>
<td>United States</td>
<td>Barnes et al</td>
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<tr>
<td>Adolescents</td>
<td>6</td>
<td>Montreal</td>
<td>Vitaro et al</td>
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Young adults

<table>
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<tr>
<th>Study Population</th>
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<tbody>
<tr>
<td>Young adults</td>
<td>2</td>
<td>Canada ADHD study</td>
<td>Breyer et al, 2009</td>
</tr>
<tr>
<td>Young adults</td>
<td>2</td>
<td>Dunedin cohort</td>
<td>Slutske et al, 2005</td>
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<tr>
<td>Young adults</td>
<td>3</td>
<td>Minnesota</td>
<td>Winters et al, 2002, 2005</td>
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<tr>
<td>Young adults</td>
<td>4</td>
<td>Australia</td>
<td>Delfabbro, Winefield &amp; Anderson, 2009</td>
</tr>
<tr>
<td>College – young adult</td>
<td>4</td>
<td>Midwest US</td>
<td>Slutske, Jackson &amp; Sher, 2003</td>
</tr>
<tr>
<td>College – young adult</td>
<td>4</td>
<td>Midwest US (1 gambling item)</td>
<td>Goudriaan et al, 2009</td>
</tr>
<tr>
<td>Young adults</td>
<td>6</td>
<td>Australia health study</td>
<td>Hayatbakhsh et al, 2006</td>
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### Special populations

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<tbody>
<tr>
<td>Regular EGM players</td>
<td>6 (6 months)</td>
<td>Australia</td>
<td>Dickerson, Haw &amp; Shepherd, 2003</td>
</tr>
<tr>
<td>At-risk &amp; help-seeking gamblers</td>
<td>6 (12 months)</td>
<td>Canada</td>
<td>Wiebe et al, 2009</td>
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<tr>
<td>Scratchcard players</td>
<td>2</td>
<td>Netherlands</td>
<td>DeFuentes-Merillas et al, 2004</td>
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<tr>
<td>Regular VLT players</td>
<td>2</td>
<td>Nova Scotia</td>
<td>Schrans, Schellinck &amp; Walsh, 2000</td>
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<tr>
<td>Casino employees</td>
<td>3</td>
<td>United States</td>
<td>Shaffer &amp; Hall, 2002</td>
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## Adult studies

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<tr>
<td>Adults</td>
<td>2</td>
<td>Ontario</td>
<td>Wiebe et al, 2003a, 2003b</td>
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<tr>
<td>Adults</td>
<td>2</td>
<td>New Zealand</td>
<td>Abbott, Williams &amp; Volberg, 2004</td>
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<tr>
<td>Older low-income adults</td>
<td>3</td>
<td>United States (1 gambling item)</td>
<td>Vander Bilt et al, 2004</td>
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<tr>
<td>Adults</td>
<td>3</td>
<td>Quebec</td>
<td>Kairouz et al (analysis underway)</td>
</tr>
<tr>
<td>Adults</td>
<td>4</td>
<td>Alberta LLLP</td>
<td>el-Guebaly et al (analysis underway)</td>
</tr>
<tr>
<td>Adults</td>
<td>5</td>
<td>Ontario QERI</td>
<td>Williams et al (analysis underway)</td>
</tr>
<tr>
<td>Adults</td>
<td>4</td>
<td>Victoria</td>
<td>Billi et al (analysis underway)</td>
</tr>
<tr>
<td>Adults</td>
<td>6</td>
<td>Sweden</td>
<td>Romild et al (data collection &amp; analysis underway)</td>
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Methodological problems

- While the number of longitudinal studies in the gambling field is growing, many of these studies suffer from serious methodological problems:
  - Small sample size
  - Biased samples
  - Low retention / high attrition rates
  - Short study duration
  - No tracking of gambling parameters
    - one-time addition of a gambling module
  - Lack of qualitative input
    - poor understanding of personal perspectives & interpretations
Methodological advances

- Recent studies have included much larger samples
  - Representative of population at baseline
  - Significant resources dedicated to minimizing bias due to attrition

- Recent studies have longer duration
  - More fine-grained picture of transitions
  - Better sense of scope/scale of PG status changes

- Qualitative/in-depth input increasingly incorporated
Methodological advances

- Recent studies have included more sophisticated analytic approaches
  - Logistic regression
  - Multivariate analyses of variance
  - Hierarchical linear modeling
  - Individual & group trajectory analysis
  - Structural equation modeling w/latent variables
  - Latent class analysis & latent transitions btw classes
  - Survival analysis

- Missing data addressed via weighting & imputation

- Attrition analysis & group classification are elements of the best studies
Key findings

- Differentiating between proximal & distal factors
  - Recent gambling behavior/symptoms are better predictors of same behavior in subsequent years than more distant measures

- Gambling problems tend to resolve over time

- Different groups of gamblers characterized by different trajectories towards problem gambling
  - Different predictors for at-risk & problem gambling
  - Involvement in clusters of different gambling activities associated w/different levels of risk
Key findings

- Substantial attention has been paid to the relationship btw gambling & personality disorders

- Hazardous alcohol use has been identified as a key risk factor for PG in several studies

- Depression & non-productive coping styles have also been identified as key risk factors
  - Proximal rather than distal?

- Only two protective factors have been identified
  - Female gender
  - Engagement in religious activities
Risk factors predicting PG development across two studies

- Gambling in the past year on EGMs, casino table games, Internet
- Betting weekly on horse/dog races
- Poor health (physical, mental)
- Smoking
- Risky drinking habits
- Difficulties at work
- Changes in working conditions
- Loss of a close relative
- Changes in personal/HH finances

Swedish National Institute for Public Health, 2012; Victoria Department of Justice, 2011
Some implications for policy & practice

- Some PGs are ‘new’ while others are ‘relapsing’
  - Important when designing treatments
  - Relapsers may have more acute problems, other physical/mental disorders
  - New PGs may be more responsive to brief interventions, less intensive treatments

- Larger % of population has experienced difficulties than prevalence rates suggest
  - ‘Natural selection’ will be high in this group in wake of gambling introductions, expansions
  - Policy, regulatory safeguards needed to minimize ‘natural selection’
  - Prevention, intervention safeguards needed to support PGs in remission or recovery & prevent development of new PGs
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