Marijuana and Gambling Associations from Connecticut High School Survey data

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Gambling behaviors and attitudes in adolescent high-school students: Relationships with problem-gambling severity and smoking status

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FULL-LENGTH REPORT

Formative examination of marijuana use, problem-gambling severity, and health correlates among adolescents

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Gambling is Common in Adolescence

• 80%+ adolescents report lifetime gambling

• Gambling Disorder (GD): 1-4% in general adult population

• At-Risk / Problem Gambling (ARPG)
  • 21% in adolescence/young adulthood
  • Poor social, occupational functioning
  • Co-occurring psychiatric conditions

(Desai & Potenza, 2008; Ellenbogen, Gupta & Derevensky, 2007; Jackson, Dowling Tomas Bond & Patton, 2008; Petry Stinson & Grant, 2005; Shaffer & Korn, 2002; Yip, White, Grilo & Potenza, 2011).
Smoking is Common in Adolescence

- 50%+ of high school students have tried smoking
  - 1/6 currently smoke
- Most adults who smoke started in adolescence
- Associated with negative psychiatric and medical measures
- Few studies have examined relationships between gambling and smoking in adolescents

(CDC, 2012; Lantz, 2003; Schoenborn et al., 2013)
Smoking is Common in Adolescence

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➢ First adolescent study to examine gambling behaviours and attitudes by smoking status and problem gambling severity
High School Survey Methodology

- Survey data from Connecticut high school students (N = 1591)
- 154-item self-report survey
  - Gambling behaviours, types, locations, triggers, motivations

- “Any game you bet on for money OR anything else of value”

- Grouped by **gambling status:**
  - At-risk/Problem Gambling (ARPG)
  - Low-risk Gambling (LRG)

- **Smoking status**
  - Current Smokers
  - Non-Smokers
At-Risk/Problem Gambling (ARPG) adolescents who smoke:

(compared to ARPG who don’t smoke)

Gambling types & locations:
- Slot machine, poker machine
- Strategic gambling
- online, school & casino

Gambling in response to triggers:
- Feeling pressure to gamble
- Gambling to relieve anxiety

Gambling partners
- With strangers & alone

- time spent gambling
- Earlier gambling onset
- scratch-offs & lottery tickets
- Perceived parental approval
- endorsement of PG prevention measures
Low-Risk Gambling (LRG) adolescents who smoke:
(compared to LRG who don’t smoke)

Gambling types & locations:
- ↑ Non-strategic gambling
- ↑ school gambling

Gambling in response to triggers:
- Gambling to relieve anxiety

Gambling reasons:
- ↑ financial reasons
- ↓ scratch-offs & lottery tickets
- ↓ Perceived parental disapproval
- ↓ endorsement of PG prevention measures

Gambling partners
- With friends & alone
Smoking is associated with more severe gambling behaviours in adolescents

- Smoking as ‘clinical indicator’
  - more severe/problematic gambling in adolescence

- Integrating smoking information into prevention and intervention efforts with all adolescent gamblers.
Marijuana Use is Common in Adolescence

- 43% report lifetime use
- 5% report weekly, or daily use

Prevalence of past-year marijuana use, by sex and selected characteristics, household population aged 15 or older, Canada excluding territories, 2012

<table>
<thead>
<tr>
<th>Age group</th>
<th>Total</th>
<th>Male</th>
<th>Female</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>'000</td>
<td>%</td>
<td>95% confidence interval</td>
</tr>
<tr>
<td></td>
<td>from</td>
<td>to</td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>3,429.7</td>
<td>12.2</td>
<td>11.5-12.8</td>
</tr>
<tr>
<td>15 to 17</td>
<td>275.5</td>
<td>20.0</td>
<td>17.0-23.4</td>
</tr>
<tr>
<td>18 to 24†</td>
<td>1,021.8</td>
<td>33.3</td>
<td>30.6-36.0</td>
</tr>
<tr>
<td>25 to 44</td>
<td>1,444.9</td>
<td>15.6</td>
<td>14.4-16.9</td>
</tr>
<tr>
<td>45 to 64</td>
<td>648.6</td>
<td>6.7</td>
<td>5.9-7.6</td>
</tr>
<tr>
<td>65 or older</td>
<td>38.9</td>
<td>0.8</td>
<td>0.6-1.1</td>
</tr>
</tbody>
</table>

Source: 2012 Canadian Community Health Survey – Mental Health
Connecticut High School Survey

Hammond et al., 2014

First study to systematically examine relationships between adolescent marijuana use and problem gambling severity
- Range of health/functioning and gambling-related variables
- 2252 Respondents

- Lifetime Marijuana Use
  - “Have you ever smoked marijuana?”
  - Yes = lifetime marijuana user \( \Rightarrow \) 993 (44.1%)
  - No= lifetime marijuana non-user \( \Rightarrow \) 1259

- Problem Gambling Severity
  - Non-gambling \( \Rightarrow \) 392 (17.4%)
  - Low-risk gambling \( \Rightarrow \) 1233 (54.8%)
  - At-risk problem gambling \( \Rightarrow \) 627 (27.8%)
Results – Marijuana Rates and Problem Gambling

- 44% reported life-time marijuana use
- 63% in past 30 days

Problem gambling severity is associated with marijuana use
- ARPG group greater in the marijuana-use group (35% vs 22%)

Adapted from Hammond et al., 2014
### Gambling Behaviours & Motivations in Marijuana-use & Non-use groups

#### Table 2. Gambling measures by marijuana-use status

<table>
<thead>
<tr>
<th>Variable/CATEGORY</th>
<th>Lifetime marijuana use status</th>
<th>$\chi^2$ statistics</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Use ($N=993$)</td>
<td>Non-use ($N=1259$)</td>
</tr>
<tr>
<td></td>
<td>%</td>
<td>%</td>
</tr>
<tr>
<td>Gambling type</td>
<td>Non-strategic Machine</td>
<td>74.5</td>
</tr>
<tr>
<td>Gambling location</td>
<td>Online</td>
<td>35.4</td>
</tr>
<tr>
<td></td>
<td>School gambling</td>
<td>51.8</td>
</tr>
<tr>
<td></td>
<td>Casino</td>
<td>36.6</td>
</tr>
<tr>
<td>Gambling triggers</td>
<td>Pressure/Urge Anxiety</td>
<td>10.9</td>
</tr>
<tr>
<td>Gambling motivations</td>
<td>Excitement</td>
<td>68.0</td>
</tr>
<tr>
<td></td>
<td>Financial reasons</td>
<td>59.9</td>
</tr>
<tr>
<td></td>
<td>Escape</td>
<td>34.3</td>
</tr>
<tr>
<td></td>
<td>Social reasons</td>
<td>41.2</td>
</tr>
<tr>
<td></td>
<td>Time spent gambling</td>
<td></td>
</tr>
<tr>
<td></td>
<td>1 hour or less per week</td>
<td>77.2</td>
</tr>
<tr>
<td></td>
<td>2 or more hours per week</td>
<td>22.9</td>
</tr>
<tr>
<td></td>
<td>Age of onset of gambling</td>
<td></td>
</tr>
<tr>
<td></td>
<td>&lt;8 years</td>
<td>18.3</td>
</tr>
<tr>
<td></td>
<td>9–11 years</td>
<td>16.6</td>
</tr>
<tr>
<td></td>
<td>12–14 years</td>
<td>33.7</td>
</tr>
<tr>
<td></td>
<td>15+ years</td>
<td>31.5</td>
</tr>
</tbody>
</table>

*Note: $\chi^2$ statistics indicate the significance of differences between the marijuana-use and non-use groups.*

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**Gambling partners**
- Family: 44.1% in Use group vs. 45.8% in Non-use group, $\chi^2=0.51$, $P=0.48$
- Friends: 74.5% in Use group vs. 67.9% in Non-use group, $\chi^2=9.81$, $P=0.002$
- Other adults: 26.0% in Use group vs. 22.9% in Non-use group, $\chi^2=2.43$, $P=0.12$
- Strangers: 14.5% in Use group vs. 3.9% in Non-use group, $\chi^2=64.61$, $P<0.001$
- Alone: 10.5% in Use group vs. 6.8% in Non-use group, $\chi^2=8.00$, $P=0.005$

**Time spent gambling**
- 1 hour or less per week: 77.2% in Use group vs. 88.5% in Non-use group, $\chi^2=35.96$, $P<0.001$
- 2 or more hours per week: 22.9% in Use group vs. 11.6% in Non-use group, $\chi^2=13.42$, $P=0.004$
Gambling behaviours in both marijuana-using and non-using groups

• ARPG vs LRG adolescents:
  • Engage in strategic, non-strategic and machine gambling
  • Gamble online, at school, casino
  • Have motivations of excitement, escape/reduction of dysphoria, financial reasons, social reasons for gambling
  • Gamble to reduce anxiety
  • Gamble with family, other adults, strangers and alone
  • Spend significantly more time gambling
Health/functioning measures in both marijuana-using and non-using groups

• Elevated odds in LRG and ARPG groups (vs NG)
  
  • Cigarette smoking
  • Alcohol use
  • Other drug use
  • Caffeine
  • Aggression
  • Depression
  • Participation in extracurricular activities
Health/Functioning Measures: Marijuana-Gambling Group Interactions

- Marijuana-using group reported greater impairment across health/functioning measures

**BUT**

- weaker associations with problem gambling severity

➢ Suggests that some problem-gambling-related impairments may be attributable to marijuana use
Limitations/Future Directions

• Cross-sectional → no causal determinations
• Self-report → responder bias, under-, over-reporting
• Not nationally-representative
• Non-response bias
• Non-diagnostic/dichotomous measures

• Exclusion of special groups
• Examining potential mediators
• Data from early 2000’s
  • Gambling landscape changes
  • Marijuana landscape changes
• Longitudinal research
  • How marijuana use modifies gambling behaviours
Motivational Neurocircuitry

Chambers, Taylor & Potenza, 2003
Clinical Implications / Future Studies

• Parental permissiveness/approval

• Increase screening for gambling and substance use

• Integrated approach in systems of care

• Limit gambling availability and gambling access to venues
Thank you

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