Smoking Escalation, Smoker Identity, and Peer Influence Among Adolescents

Andrew W. Hertel, Ph.D. and Robin J. Mermelstein, Ph.D.
University of Illinois at Chicago, Institute for Health Research and Policy
40% of 12th graders have smoked a cigarette at least once in their lifetime

- Q: What are the psychological factors?
- A: External factors, namely peer influence

^MTF: Johnson et al., 2011
10% of 12<sup>th</sup> graders smoke cigarettes on a daily basis<sup>A</sup>

- Q: What are the psychological factors?
- A: Internal factors, such as *smoker identity*<sup>E</sup>

<sup>A</sup>MTF: Johnson et al., 2011; <sup>B</sup>Colby et al., 2000; <sup>C</sup>Arnett, 2000; <sup>D</sup>Mayhew et al., 2000; <sup>E</sup>Hertel & Mermelstein, in press
For people who have smoked, internalization of smoking behavior such that it is a defining aspect of who they are:
- It is a belief about the self
- “I am a smoker” (vs. “I smoke”)
Smoking Escalation and Smoker Identity

Smoker Identity

Peer Influence

Trying Smoking
Smoking Escalation and Smoker Identity

- Smoker Identity
- Peer Influence
- Smoking Escalation
The influence of smoker identity should be particularly salient during a time of social environment change.
Chicago-area adolescents ($n = 1036$)
- All had smoked at least once in their life prior to the beginning of the study are included in analyses
- Age
  - $M = 15.7$ years old
- Gender
  - 56.1% Female
- Ethnicity
  - 55.8% White, 18.9% Hispanic, 15.8% Black, 3.4% Asian, 6.1% “other”
## Adolescent Smoking Study – Measures

<table>
<thead>
<tr>
<th>Variable</th>
<th>BL</th>
<th>6 months</th>
<th>15 months</th>
<th>24 months</th>
<th>33 months</th>
</tr>
</thead>
<tbody>
<tr>
<td>Smoking Behavior</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>Smoker Identity</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>Peer Influence</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
</tbody>
</table>
## Adolescent Smoking Study – Measures

<table>
<thead>
<tr>
<th>Variable</th>
<th>BL</th>
<th>6 months</th>
<th>15 months</th>
<th>24 months</th>
<th>33 months</th>
</tr>
</thead>
<tbody>
<tr>
<td>Smoking Behavior</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>Smoker Identity</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>Peer Influence</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>Social Environment Change</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>X</td>
</tr>
</tbody>
</table>
# Adolescent Smoking Study – Measures

<table>
<thead>
<tr>
<th>Variable</th>
<th>Scale Information</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Smoking Behavior</strong></td>
<td><strong># days smoked in past 30 days</strong></td>
</tr>
<tr>
<td></td>
<td>“Now think about the past 30 days. On how many days did you smoke or try cigarettes?”</td>
</tr>
</tbody>
</table>
| **Smoker Identity**       | **2 items, 1-5 scale**  
|                           | α = .61 - .70                                                                     |
|                           | Extent of identity: “How much is being a smoker part of who you are?”  
|                           | “How important are cigarettes in your life?”                                     |
| **Peer Influence**        | **5 items, 1-6 scale**  
|                           | α = .81 - .85                                                                     |
|                           | Exposure/Approval: “How often are you around friends while they are smoking cigarettes?”  
|                           | “How many of your 5 closest friends would approve if you smoked a cigarette?”    |
| **Social Environment Change** | **0 = in h.s.  
|                           | 1 = not in h.s.**                                                                 |
|                           | “What best describes your current schooling/educational status?”                  |
# Adolescent Smoking Study – Measures

<table>
<thead>
<tr>
<th>Variable</th>
<th>BL</th>
<th>6 months</th>
<th>15 months</th>
<th>24 months</th>
<th>33 months</th>
</tr>
</thead>
<tbody>
<tr>
<td>Smoking Behavior</td>
<td>4.68</td>
<td>5.35</td>
<td>6.72</td>
<td>7.72</td>
<td>10.09</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>(&lt; 0)</td>
</tr>
<tr>
<td>Smoker Identity</td>
<td>1.65</td>
<td>1.59</td>
<td>1.65</td>
<td>1.69</td>
<td></td>
</tr>
<tr>
<td>Peer Influence</td>
<td>3.76</td>
<td>3.77</td>
<td>3.88</td>
<td>3.99</td>
<td></td>
</tr>
<tr>
<td>Social Environment Change</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>0 = 43.15%</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>1 = 56.85%</td>
</tr>
</tbody>
</table>
Prediction: Smoker identity is a stronger positive predictor than peer influence of changes in smoking behavior from 24- to 33-months

- Due to non-normal distribution of 33-month smoking behavior, in a two-step process we predicted:
  1) Change in status among all participants
     - 0 = had not smoked in the past 30 days, 1 = had smoked in the past 30 days
  2) Change in number of days smoked among those who reported smoking at 33-months
     - Square-root transformed
Predicting Change in Smoking Behavior from 24- to 33-months

**Smoker Identity**

B = .19, p > .10

**Peer Influence**

B = .31, p < .01

**33-month smoking status**

SI: B = .19, \( \chi^2 (1) = 1.39, p > .10 \), OR = 1.21 [95% CI = 0.88, 1.65]

PF: B = .31, \( \chi^2 (1) = 17.05, p < .01 \), OR = 1.37 [95% CI = 1.18, 1.56]
Predicting Change in Smoking Behavior from 24- to 33-months

- **Smoker Identity**
  - B = .18, p < .01

- **Peer Influence**
  - B = .11, p < .05

- **24-month smoking behavior**
- **Nicotine Dependence**
- **Social-Environment Change**

- **33-month # days smoked**
Both smoker identity and peer influence predicted smoking escalation even during a time of social-environment change, but there is reason to believe that smoker identity was the stronger predictor of escalation.

- Peer influence effects may actually reflect peer selection driven by smoker identity.
Smoking Escalation, Smoker Identity, and Peer Influence

- Factors of smoking escalation are different from factors of trying smoking
  - External factors, such as peer influence, contribute more strongly to trying smoking, whereas internal factors, such as smoker identity, contribute more strongly to smoking escalation
- Intervention efforts and rational psychological models applied to smoking among adolescents should take this into consideration
Acknowledgements

- Funding:
  - NCI grant 5P01CA098262
- Principal Investigator:
  - Robin Mermelstein, Ph.D.
- Data collection and management
  - Kathleen Diviak, John O’Keefe, Anna Jo Baccellieri
  - Dan Conybeare, Veronica Coriano, Nicky Debnar, Alex Kriegsmann, Rachel Gerson, Melanie Richmond, Randi Schuster, Anna Smith, Alex Sokolovsky, Sam Wing