Reversal Theory States in Smoking Cessation among Adolescents

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Goal

• To learn about the process of smoking cessation in adolescents
**Purpose of the Study**

- To predict whether adolescents who are trying to quit smoking will lapse during highly tempting situations as predicted by psychological states described in Reversal Theory.
Specific Aims

• To identify psychological states
• To examine the relationships between psychological states, lapse, and cigarette availability
• To predict lapse from psychological states and cigarette availability
Hypotheses

• When tempted to smoke, adolescents in the paratelic state are more likely to lapse than adolescents in the telic state.

• When tempted to smoke, adolescents in the negativistic state are more likely to lapse than adolescents in the conformist state.
Hypotheses (con’d)

• Cigarette availability is not related to lapse for adolescents in the telic state.

• When cigarettes are readily available, adolescents in the paratelic state are more likely to lapse than when effort is required to obtain cigarettes.

• When tempted to smoke, adolescent’s psychological state and cigarette availability predict lapse.
Significance

- Tobacco use is the leading preventable cause of death in the U.S.
- 5 million teens expected to die as a consequence
- Smoking prevalence among teens has increased to 36%
- 80% of first tobacco use occurs in adolescents under 18
Many teens realize they are addicted
Many teens try to quit; 60% have tried in last year
40% quit for a week or less
28% of those who quit for as long as 6 months resume smoking within a year
Current approaches are not successful
# Theoretical Framework

**Reversal Theory**

Pairs of Metamotivational States

<table>
<thead>
<tr>
<th>Telic/Paratelic</th>
<th>Negativistic/Conformist</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mastery/Sympathy</td>
<td>Autocentric/Allocentric</td>
</tr>
</tbody>
</table>
Telic/Paratelic Pair

- Goal-oriented
- Serious-minded
- Prefer low arousal
- Future oriented

- Activity-oriented
- Playfulness
- Prefer high arousal
- Here and now oriented
Negativistic/Conformist Pair

- Rebellious
- Oppositional
- Defiant

- Conforming
- Responsible
- Keeps the rules
Sampling Plan

- ages 14-19
- high school students
- convenience
- N=62
Eligibility Criteria

• Self-reported daily smoking during the previous 30 days
• Self-reported smoking for at least one year
• Recent participation in smoking cessation program
• Decision to quit smoking
Preliminary Studies

- Pilot test of demographic questionnaire: N=6
- Pilot test of Metamotivational State Interview: N=2
Methods

- Descriptive study
- In-depth semi-structured interviews
- Demographic questionnaire - 40 items
- Metamotivational State Interview
Demographic Questionnaire

- 40 items
- Content similar to national surveys
- Age, gender, educational characteristics
- Smoking habits
- 5-7 minutes to complete
Metamotivational State Interview

- Semi-structured interview
- 45-60 minutes to administer
- Interrater reliability: 74% - 88% in previous studies
- Interrater reliability for this study: 90%
Metamotivational State Interview (con’d)

- Transcribe the interview
- Divide episode into coding units
- Code the telic/paratelic dimension
- Code the negativistic/conformist dimension
- O’Connell, Potocky, Cook, & Gerkovich (1991)
Smoking Cessation Classes

- 8 Arkansas high schools participated
- 2 classes presented
- Taught by Senior Nursing Student and Health Educators
- Content from American Lung Association
Data Collection

- Interviews conducted at high schools
- In private
- Tape-recorded
- Transcribed verbatim
- Transcriptions reviewed by investigator
Reliability

- Random sample of 10 coded transcripts
- Coded by Dr. O’Connell
- 90% interrater agreement based on first coding
Data Management

• Data entered into Microsoft Access
• Analyzed in SPSS
# Demographic Data

<table>
<thead>
<tr>
<th>Descriptive Statistics</th>
<th>Inferential Statistics</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mean</td>
<td>Chi-square</td>
</tr>
<tr>
<td>Range</td>
<td>Logistic regression</td>
</tr>
<tr>
<td>Standard deviation</td>
<td></td>
</tr>
<tr>
<td>Frequencies</td>
<td></td>
</tr>
<tr>
<td>Proportions</td>
<td></td>
</tr>
</tbody>
</table>
Sample

- N=62
- 8 Arkansas high schools
  - 344 - 1,501 students
  - In towns with populations 1,148 - 61,829
  - 50.9% male
  - 87% white, 8.7% black
Sample (con’d)

- **Subjects (N=62)**
  - Age  $X=16.7$ (SD=1.68)
  - Grade level  $X=10.9$ (SD=1.14)
  - 26 (42%) male
  - 54 (87%) white
  - 46 (74%) participated in extracurricular activities
  - All but one attended the smoking cessation class
Smoking History

- 55 (89%) trying to quit
- 40 (64%) still smoking some
- 22 (36%) “ex-smokers”
- 58 (94%) smoked 1 year or longer
- 52 (84%) smoked every day
Reversal Theory Context

- 49 (79%) said smoking is relaxing
- 15 (24%) said smoking is fun
- 11 (18%) said smoking is exciting
Analysis

• 14 subjects had not smoked to the time of the interview
• 48 subjects had smoked at least once
• Data analyzed 3 ways
  – N=110 all tempting episodes
  – N=62 (14 resist episodes from those who had not smoked and 48 lapse episodes from those who had)
  – N=96 (resist and lapse episodes from those who had smoked)
Results

• T-test and Chi-Square to test for differences between resisters and lapsers (p=.05)
  – No statistically significant differences in age, grade level, or age at first cigarette
  – Race, gender, education, employment of mother and father, and relationships with teachers, coaches, parents, and other relatives who smoke
  – Experience with previous attempts at quitting
Results (con’d)

- Resisters more likely to make better grades ($\chi^2=11.2$, df=5, $p=.048$)
- Resisters less likely to have friends who smoke ($\chi^2=5.23$, df=1, $p=.022$)
- Resisters less likely to have neighbors who smoke ($\chi^2=6.46$, df=1, $p=.011$)
## Logistic Regression Analysis

*p<.05; **p<.01; ***p<.001 (2-tailed)

<table>
<thead>
<tr>
<th>N=110</th>
<th>Coefficient</th>
<th>Odds Ratio</th>
<th>95% CI</th>
</tr>
</thead>
<tbody>
<tr>
<td>(\chi^2=) (df=2)</td>
<td>***49.729</td>
<td></td>
<td></td>
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</tbody>
</table>

**Metamotivational State**

<table>
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<tr>
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</thead>
<tbody>
<tr>
<td>Telic</td>
<td>1.000</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Paratelic</td>
<td>***2.730</td>
<td>***15.337</td>
<td>5.387, 43.666</td>
</tr>
</tbody>
</table>

**Cigarette Availability**

<table>
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<th></th>
<th>Coefficient</th>
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<tr>
<td>With effort</td>
<td>1.000</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Without effort</td>
<td>**1.529</td>
<td>**4.612</td>
<td>1.610, 13.211</td>
</tr>
</tbody>
</table>
### Logistic Regression Analysis

*p*<.05; **p*<.01; ***p*<.001 (2-tailed)

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<tr>
<td>χ²=(df=2)</td>
<td>***13.334</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Cigarette Availability</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>With effort</td>
<td>1.000</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Without effort</td>
<td><strong>2.383</strong></td>
<td><strong>10.833</strong></td>
<td>2.759,42.522</td>
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**Logistic Regression Analysis**

*p<.05; **p<.01; ***p<.001 (2-tailed)*

<table>
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<th>N=48</th>
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<tr>
<td></td>
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<td></td>
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</tr>
<tr>
<td>$\chi^2=(df=2)$</td>
<td>***37.981</td>
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**Metamotivational State**

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<td>1.000</td>
<td></td>
</tr>
<tr>
<td>Paratelic</td>
<td>***2.475</td>
<td>***11.883</td>
<td>4.148,34.038</td>
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**Cigarette Availability**

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<tr>
<td>Without effort</td>
<td><strong>1.409</strong></td>
<td><strong>4.094</strong></td>
<td>1.394,12.021</td>
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Limitations

• Non-random sampling limits generalizability
• Reliability
  – Retrospective self-report
  – Influence of peer pressure
Discussion

• Findings support work of O’Connell et al., Gerkovich et al. (1993), and Cook et al. (1995b) done with adults
• Variety of state-specific coping techniques for resisting temptation to smoke episodes
• Teaching adolescents cessation is made of resisting urge to smoke in tempting situations
Implications for Further Research

- Activation levels
- Developing state-specific coping strategies
- Analyzing mastery-sympathy data
- Repeating analysis with coding from TPSI
- Dialogue with Apter and others regarding measuring negativistic-state in adolescents
Thank you to:

- Dr. Craig Stotts, chair
- Dr. Kathleen O’Connell