

**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

## Significance (con'd)

- 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

Telic/Paratelic	Negativistic/Conformist
Mastery/Sympathy	Autocentric/Allocentric

# 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

## Descriptive Statistics

Mean

Range

Standard deviation

Frequencies

Proportions

## Inferential Statistics

Chi-square

Logistic regression

# 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)

N=110	Coefficient	Odds Ratio	95% CI
$\chi^2=(df=2)$	***49.729		
<b>Metamotivational State</b>			
Telic		1.000	
Paratelic	***2.730	***15.337	5.387, 43.666
<b>Cigarette Availability</b>			
With effort		1.000	
Without effort	**1.529	**4.612	1.610,13.211

# Logistic Regression Analysis

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

N=62	Coefficient	Odds Ratio	95% CI
$\chi^2=(df=2)$	***13.334		
<b>Cigarette Availability</b>			
With effort		1.000	
Without effort	**2.383	**10.833	2.759,42.522

# Logistic Regression Analysis

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

N=48	Coefficient	Odds Ratio	95% CI
$\chi^2=(df=2)$	***37.981		
<b>Metamotivational State</b>			
Telic		1.000	
Paratelic	***2.475	***11.883	4.148,34.038
<b>Cigarette Availability</b>			
With effort		1.000	
Without effort	**1.409	**4.094	1.394,12.021

# 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

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