Implicit Theories of Smoking and Association with Current Smoking Status

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Background: Smoking

- Leading cause of preventable death and disease in the United States
  - 1,300 deaths every day
- Death rate among current smokers two to three times higher than never smokers
- 16 million Americans are living with a disease caused by smoking

(Carter et al., 2015; USDHHS, 2014)

Background

- Psychological factors can impact reactions, intentions, and behaviors

- **Implicit theories** refer to the core assumptions people make about the extent to which human attributes (e.g., intelligence, morality) are dynamic and changeable or static and fixed

(Dweck, 2012; Dweck et al., 1995)

Background: Implicit Theories

- Two types of beliefs:
  - **Incremental**: a given characteristic is malleable and can be changed
    - More likely to try to change; more effort to change
  - **Entity:** given characteristic is stable and unchangeable despite efforts for change
    - Less likely to try to change; give up more easily

(Dweck, 2012; Dweck et al., 1995)

Background: Implicit Theories in Health Domains

- ## Weight loss, physical activity (Burnette, 2010; Lyons et al, 2013)

  – Incremental beliefs were associated with less avoidant coping, and the expectation to exert less effort to lose weight in response to a hypothetical dieting setback (Burnette, 2010)

  – Incremental theorists have reported greater self-efficacy for behavior change, greater motivation, and more physical activity

- ## Willpower (Job et al, 2010; Job et al., 2015)

  – Entity theorists who believe that they have a limited amount of willpower have more difficulty regulating their behaviors and resisting temptation

  – Incremental theorists who believe that willpower is an unlimited resource tend to have better self-regulation and self-control

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Background: Implicit Theories in Smoking *Intentions*

- Beliefs about whether smoking behavior is something that is changeable or fixed
  - Stronger incremental beliefs were related to lower **expectations** of future smoking behavior for current smokers (Fitz et al., 2015)
  - For nonsmokers, stronger incremental beliefs were related to greater **expectations** to start smoking in the future (Fitz et al., 2015)

Research Aims

The purpose of this study is:

- Aim 1: To characterize the US population's ITS

- Aim 2: To explore the association between ITS and **smoking behavior**, controlling for socio-demographic characteristics.

Methods: Data Source & Analysis

Data Source

- Health Information National Trends Survey (HINTS)

- Nationally representative, cross-sectional mail survey of civilian, non-institutionalized adults aged 18 or older in the United States

Secondary Data Analysis

- HINTS 4, Cycles 2 and 4 (n=7307),
  - Cycle 2 (n=3,630) October 2012 - January 2013
  - Cycle 4 (n=3,677) July 2014-November 2014
  - No significant differences between two cycles

Methods: Measures

Implicit Theories of Smoking

"Smoking behavior is something basic about a person that they can't change very much" (strongly agree, somewhat agree, somewhat disagree, strongly disagree).

Responses were dichotomized into Agree (strongly agree and somewhat agree) and Disagree (somewhat disagree and strongly disagree)

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Smoking Status

Two items assessed smoking status: (1) "*Have you smoked at least 100 cigarettes in your entire life?* (*yes/no*) and (2) *How often do you now smoke cigarettes?* (*every day, some days, not at all*)".

Three smoking status categories were derived: current smoker (every day and some days), former smoker, and never smoker.

Results: Descriptives

Variable	Percentage(SE)
ITS	
Incremental (changeable)	83% (0.79)
Entity (fixed)	17% (0.79)
Smoking Status	
Current	17% (0.80)
Former	23% (0.75)
Never	60% (0.95)
Smoking Status x ITS	
Current – Incremental/Entity	69%/31%
Former – Incremental/Entity	90%/10%
Never – Incremental/Entity	84%/16%

Results: Weighted Multinomial Logistic Regression: ITS and Smoking Status

	Smoking Status	
	Former Vs. Current	**Never Vs. Current**
Implicit Theory		
Incremental (ref)	1.00	1.00
Entity	**0.33 (0.21-0.49)*****	**0.60 (0.43-0.85)****
Education		
Less than high school (ref)	1.00	1.00
High school graduate	1.52(0.90-2.60)	1.47(0.96-2.25)
Post HS training other than college	**2.18(1.42-3.36)*****	**1.89(1.16-3.07)****
Some college	**2.75(1.48-5.08)****	**3.24(1.63-6.45)****
College graduate or higher	**3.15(1.78-5.57)*****	**4.39(2.39-8.05)*****

* Significant at the p<.05 level   **Significant at the p<.01 level   *** Significant at the p<.001 level

Conclusions

- ITS are associated with smoking status
  - Entity beliefs about smoking (smoking cannot be changed) are associated with greater risk of current smoking
    - If people believe there's nothing they can do, less likely to quit
- Increasing educational attainment associated with higher odds of being former vs. current smoker
  - More educated, more likely to have quit smoking

Implications

- Previous studies have shown success in cultivating incremental beliefs
  - Intelligence
  - Weight loss
  - Physical Activity
- Campaigns or interventions that emphasize that smoking is a changeable behavior to cultivate incremental beliefs may be effective in motivating smoking cessation

Strengths and Limitations

Strengths

- One of first studies to explore ITS and smoking *behavior*

- Nationally representative data

Limitations

- Cross sectional

- ITS measured by 1 item

- Sample: few smokers; high in incremental beliefs

More Information

- Acknowledgement of co-authors: Kisha Coa (ICF), Annette Kaufman (NCI)

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- HINTS: http://hints.cancer.gov/

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