# Negative Affect and Smoking Behavior: The Nature of the Relation Differs By Race/Ethnicity

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## Introduction

**Smoking Behavior and Race/Ethnicity**
Tobacco-related health disparities span the continuum of tobacco use and tobacco control (Fagan et al., 2004; U.S. Department of Health and Human Services, 1998).

Race/ethnic differences in patterns of use are complex (Giovino, 2002; Kabat et al., 1991; King, 1997); e.g., Blacks begin smoking later (DHHS, 1998) but White/Black smoking rates are comparable in adults (Caraballo et al., 2008; Pampel, 2008), and Black smokers are more likely to be light smokers (U.S. Department of Health and Human Services, 1998).

Given this variability it is possible that different mechanisms account for smoking behavior across race/ethnic groups.

**Negative Affect and Smoking Behavior**
There is a well-established link between negative affect and smoking behavior (Kassel, Stroud, & Paronis, 2003). Negative affect increases smoking behavior in current smokers (Conklin & Perkins, 2005). Negative affect is associated with lapses in cessation in smokers trying to quit (Shiffman & Waters, 2004).

However, few previous studies have focused on the relation between negative affect and smoking behavior in non-Whites; to our knowledge, no study has compared the relation across race/ethnic groups in adult smokers.

## Current Study

This study examined the whether the relation between negative affect and smoking behavior differed as a function of race/ethnicity. Using data from HINTS 2007, we examined whether race/ethnicity moderated the relation of negative affect during the past month to current smoking status and, for current smokers, number of cigarettes smoked per day.

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## Method

**Data Source**
Analyses were conducted using the HINTS 2007 dataset (both RDD and mail respondents)

**Participants**
HINTS respondents were included in the analyses if they answered the current smoking status questions, the negative affectivity assessment, and demographics used as controls. The analysis sample size was n=6,140.

**Measures**
**Race:** Participants were categorized as White, Black, or Hispanic based on responses to self-report race questions. Analyses compared White respondents to Black and to Hispanic respondents.

**Smoking Status:** Participants reported whether they had ever smoked 100 cigarettes and, if so, if they currently smoked. Answers were used to categorize participants as current smokers, former smokers, or never smokers.

**Cigarettes per Day:** Current smokers (both daily and non-daily) reported how many cigarettes they smoked on days that they smoked.

**Negative Affect:** Experiences of negative affect over the past 30 days were assessed using the K6 (Kessler et al., 2002). Participants reported experiences of six types of negative affect (e.g., so sad nothing could cheer you up) over the past 30 days using a 5 point response scale. Items were recoded so that higher numbers indicated more negative affect; the mean of the items was used for analysis (α=0.86).

**Analysis Strategy**
All analyses were conducted using STATA 10. Analyses used survey techniques to account for the complex sampling design. Prior to analysis mode effects were extensively tested; mode did not influence any main effects or interactions.

The key hypothesis testing analysis concerns the interaction of race and negative affect as a predictor of smoking behavior. Logistic regression was used for smoking status analyses; linear regression was used for cigarettes per day analyses. All models controlled for gender, age, education, and income.

## Results

**Descriptive Statistics**

| | Negative Affect Mean [95% CI] | Current Smokers [95% CI] | Cigarettes/Day Mean [95% CI] |
|---|---|---|---|
| Full Sample | 1.87 [1.84, 1.90] | 21.4% [20.0, 22.9] | 15.50 [14.50, 16.51] |
| White | 1.82 [1.79, 1.85] | 21.3%[19.7, 22.9] | 17.25 [16.11, 18.39] |
| Black | 1.92 [1.82, 2.01] | 23.8% [18.7, 29.0] | 10.59 [9.36, 11.81] |
| Hispanic | 1.98 [1.89, 2.08] | 21.4% [16.0, 26.9] | 9.69 [6.83, 12.56] |

**Race, Negative Affect, and Smoking Status**
Overall, higher levels of negative affect were associated with a greater likelihood of current smoking; there were significant race x negative affect interactions; White/Black interaction $t\ (49) = -2.34$, $p < .05$; White/Hispanic interaction $t = -2.36$, $p < .05$.

| | Relation of Affect to Smoking Status (Odds Ratio) [95% CI] |
|---|---|
| Full Sample | 1.52 [1.32, 1.75] |
| White | 1.66 [1.51, 1.94] |
| Black | 1.02 [0.72, 1.46] |
| Hispanic | 1.27 [0.92, 1.76] |

**Race, Negative Affect, and Cigarettes Per Day**
Overall, higher levels of negative affect were associated with a greater number of cigarettes per day; there were race x negative affect interactions; Whites versus Hispanics, t=-3.24 p < .002; Whites versus Blacks, t=-1.60 p=.11.

| | Relation of Affect to Smoking Status (unstandardized slope) [95% CI] |
|---|---|
| Full Sample | 1.30 [0.33, 2.28] |
| White | 1.13 [-0.09, 2.35] |
| Black | 1.11 [-0.68, 2.92] |
| Hispanic | -0.71 [-3.23, 1.81] |

## Conclusion

Negative affect is a predictor of smoking behavior for White but not for Black or Hispanic respondents. This suggests that mechanisms driving smoking behavior differ by race. The finding has implications for both better understanding racial differences in smoking behavior and for developing interventions to address tobacco-related health disparities.