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Gender, Ethnicity, and their Intersectionality in the Prediction of Smoking Outcome Expectancies in Regular Cigarette Smokers

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Abstract

The current study utilized the intersectionality framework to explore whether smoking outcome expectancies (i.e., cognitions about the anticipated effects of smoking) were predicted by gender and ethnicity, and the gender-by-ethnicity interaction. In a cross-sectional design, daily smokers from the general community [32.2% women; Non-Hispanic African American (N=175), Non-Hispanic White (N=109), or Hispanic (N=26)] completed self-report measures on smoking expectancies and other co-factors. Results showed that women reported greater negative reinforcement (i.e., anticipated smoking-induced negative affect reduction) and weight control (i.e., anticipated smoking-induced appetite/weight suppression) expectancies than men. Hispanic (vs. African American or White) smokers endorsed greater negative reinforcement expectancies. A gender by ethnicity interaction was found for weight control expectancies, such that White women reported greater weight control expectancies than White men, but no gender differences among African American and Hispanic smokers were found. Ethnicity, gender, and their intersectionality should be considered in smoking cessation programs to target smoking-related cognitions.

Keywords

ethnic minority; gender differences; health disparities; smoking expectancies

Tobacco control efforts in the U.S have not equally benefited all members of society, contributing to tobacco-related health disparities among certain cross-sections of the population (American Cancer Society, 2014; Gadgeel & Kalemkerian, 2003; Haiman et al., 2006; Jemal et al., 2008; Siegel, Ward, Brawley, & Jemal, 2011; Underwood et al., 2012; USDHHS, 1998). Evidence suggests that ethnic minorities (vs. majorities) and women (vs.

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men) have had less marked reductions in smoking prevalence over time (Agaku, King, & Dube, 2013; Barbeau, Krieger, & Soobader, 2004; Dube, Asman, Malarcher, & Caraballo, 2009; King, Dube, Kaufmann, Shaw, & Pechacek, 2011; USDHHS, 1998) and may be at greater risk for relapse following a cessation attempt (Barbeau et al., 2004; Caraballo et al., 2014; Croghan et al., 2010; Pang & Leventhal, 2013; Piper, 2010; USDHHS, 1998). Understanding psychosocial factors that underlie smoking in women and ethnic minorities is important for elucidating sources of tobacco-related health disparities and informing targets for ethnicity- and gender-specific smoking cessation treatments that maximize clinical outcomes.

Of the various psychosocial factors implicated in the etiology of persistent smoking, smoking outcome expectancies—one's cognitions about the consequences of cigarette use—are particularly important to study because of their: (a) putative role as a proximal mediator of motivation to smoke; and (b) suitability to target in psychosocial interventions aimed at modifying maladaptive cognitions that may impede cessation and enhancing adaptive cognitions that may facilitate cessation. Domains of smoking outcome expectancies can be parsed into: (1) *negative consequences* (i.e., expectations of smoking's negative effects on health and social impressions); (2) *positive reinforcement* (i.e., expectations that smoking produces positive sensory effects and social facilitation); (3) *negative reinforcement* (i.e., expectations that smoking produces negative affect reduction); and (4) *weight control* (i.e., expectation that smoking aids in weight and hunger management; Brandon & Baker, 1991). Individuals who endorse stronger pro-smoking outcome expectancies tend to be at greater risk for greater cigarette dependence and smoking relapse following a quit attempt (Gwaltney, Shiffman, Balabanis, & Paty, 2005; Herd, Borland, & Hyland, 2009; Jeffries et al., 2004; Pang, Khoddam, Guillot, & Leventhal, 2014; Pomerleau, Zucker, & Stewart, 2001), putatively because they are motivated to continue smoking in order to obtain the anticipated positive emotional, social, sensory, and weight-related outcomes they believe that smoking provides.

Extant disparities research on smoking outcome expectancies has shown that women (vs. men) endorse greater negative reinforcement smoking expectancies (Brandon & Baker, 1991; Pang, Zvolensky, Schmidt, & Leventhal, 2015; J. D. Robinson, Lam, Carter, Wetter, & Cinciripini, 2012; Weinberger, George, & McKee, 2011; Weinberger, McKee, & George, 2010) as well as greater weight control smoking expectancies (Brandon & Baker, 1991; Copeland, Brandon, & Quinn, 1995). The scant literature on ethnic differences in smoking outcome expectancies has shown that Non-Hispanic African Americans report less strong weight control outcome expectancies than Non-Hispanic Whites, but do not differ on other smoking outcome expectancies (Sánchez-Johnsen, Ahluwalia, & Fitzgibbon, 2006; Sánchez-Johnsen, Carpentier, & King, 2011; Sánchez-Johnsen, Spring, Sommerfeld, & Fitzgibbon, 2005). While we are unaware of any study that compares the smoking expectancies of Hispanic smokers to those of smokers of other ethnic groups, studies suggest that expectancy measures demonstrate good convergent validity with measures of smoking rate, cigarette dependence, craving, and smoking withdrawal in samples of Hispanic smokers (Cepeda-Benito & Reig Ferrer, 2000; Reig-Ferrer & Cepeda-Benito, 2007; Vidrine et al., 2009). A past study (Cepeda-Benito & Reig Ferrer, 2000) found gender differences in negative reinforcement smoking expectancies in Hispanics, with Hispanic women endorsing

them more than Hispanic men, but did not allow for comparisons between Hispanics and other ethnic groups (Cepeda-Benito & Reig Ferrer, 2000).

There is also reason to believe that gender and ethnicity will interact in the prediction of smoking outcome expectancies. The intersectionality framework simultaneously consider the interaction of multiple identities (Cole, 2009), and suggest that gender and ethnicity do not simply have additive effects on health-relevant behavior. Rather, the combination of being both a woman and a member of an ethnic minority group may generate a qualitatively unique psychosocial context that increases the likelihood of a specific pattern of health behavior that is not adequately reflected by exploring the independent/additive effects of gender and ethnicity. Hence, an initial test of possible intersectionality of gender and ethnicity is to explore the statistical interaction between these two variables in the prediction of smoking expectancies in order to elucidate whether the presence and nature of any gender differences in smoking expectancies are equivalent or distinct across different ethnic groups, or whether any ethnic differences in smoking expectancies vary across gender. Because of possible gender-specific ethno-cultural variation such intersectionality in smoking expectancies is plausible. For instance, the salience of smoking's expected effects on weight control may be more salient for Non-Hispanic White (vs. Non-Hispanic African American) women because culturally-specific ideals that value thinness among women may be strong in Non-Hispanic Whites, yet weaker in Non-Hispanic African American communities in which cultural norms for women's body shapes place less value on thinness (Kronenfeld, Reba-Harrelson, Von Holle, Reyes, & Bulik, 2010; Molloy & Herzberger, 1998; Rogers Wood & Petrie, 2010; Watson, Ancis, White, & Nazari, 2013). Consistent with this notion, extensive literature shows gender differences in weight control expectancies in largely Non-Hispanic White samples (Copeland et al., 1995), but a study in Non-Hispanic African Americans reported no gender differences in weight control expectancies (Pulvers et al., 2004). However, the interaction of gender and ethnicity on weight control expectancies has not been directly addressed by a study. Moreover, identifying ethnicity by gender interactions in the prediction of smoking expectancies may facilitate targeted smoking cessation programs that adapt treatments by considering both the ethnicity and gender of patients.

The current cross-sectional study examined differences in smoking expectancies by ethnicity (Non-Hispanic African American vs. Hispanic vs. Non-Hispanic White), gender (women vs. men), and their interaction in a community sample of non-treatment-seeking smokers. Regarding gender differences, we hypothesized that we would replicate prior results by demonstrating that women would report stronger weight control and negative reinforcement smoking outcome expectancies than men (Brandon & Baker, 1991; Copeland et al., 1995; Pang et al., 2015; J. D. Robinson et al., 2012; Weinberger et al., 2011, 2010). Due to the scarce theory and data on ethnicity and gender by ethnicity intersectionality in smoking outcome expectancies, we did not put forth any hypothesis regarding negative consequences and positive reinforcement smoking outcome expectancies. However, based on the previously mentioned literature, we expected women to endorse greater negative reinforcement expectancies than men and for weight control expectancies to differ by ethnicity and show an ethnicity-by-gender interaction, with Non-Hispanic White women endorsing stronger weight control expectations than Non-Hispanic White men. Hence, our

primary analytic approach utilized the agnostic strategy of profile analysis, a multivariate approach that tests whether group differences exist across a set of response domains. Profile analysis permits testing whether group differences reflect disparities in magnitude that are equivalent across response domains (e.g., women hold stronger expectancies that smoking causes any type of effect, regardless of domain) or whether disparities exist in quality or kind such that the nature of group differences vary as a function of response domains (e.g., women endorse stronger expectancies for negative reinforcement and weight control than men but do not differ from men in expectancies that smoking is associated with positive reinforcement or negative consequences).

Methods

Participants

Participants were recruited in the Los Angeles Area via online and newspaper advertisements to participate in a study on individual differences in tobacco abstinence effects, which included a baseline assessment visit and two additional experimental visits involving manipulation of overnight tobacco abstinence (Leventhal et al., 2014); this report is based upon data collected during the baseline visit. Eligibility criteria included being 18 years of age or older, regular cigarette smoker for at least 2 years, and currently smoking at least 10 cigarettes per day. Participants self-identifying as both Non-Hispanic African American and Hispanic (n=3) or both Non-Hispanic White and Hispanic (n=15) were excluded from the analyses in order to create three, distinct ethnic groups (Non-Hispanic African Americans, Non-Hispanic Whites, and Hispanics). Similar categorizations have also been utilized in previous multi-ethnic studies (Reitzel et al., 2011, 2014). Participants were also excluded if they expressed a desire to quit in the next 30 days, had a breath carbon monoxide (CO) level <10 parts per million (ppm) during session, used other tobacco products (i.e. cigars, cigarillos, electronic cigarettes), were currently using a nicotine replacement product (i.e., nicotine gum, spray, patch), were currently pregnant, met criteria for current DSM-IV substance abuse or dependence, met criteria for current DSM-IV psychiatric disorders, and currently used psychiatric medications. Participants (N=515) who met eligibility criteria after completing a telephone pre-screen were scheduled for a session, whereby more extensive screening took place. Of those who were found potentially eligible through the telephone pre-screen and came in for their session, 152 were found ineligible during their session, due to low CO levels, current psychiatric disorders or psychiatric medication use, and other criteria. Participants who completed the baseline visit were compensated \$15. The study was approved by the University of Southern California Institutional Review Board.

Procedures

At the baseline session, participants provided informed consent and then completed a CO levels analysis and a structured clinical interview for DSM-IV Non-Patient Edition (First, Spitzer, Gibbon, & Williams, 2002) mood disorders, psychotic disorders, and substance use disorder modules to assess for psychiatric eligibility. Eligible participants then completed several self-report measures (described below).

Measures

Demographics included gender (Forced choice: Woman or Man) ethnicity (Forced choice: American Indian/Alaskan Native, Asian, Non-Hispanic African American, Middle Eastern, Pacific Islander, Non-Hispanic White, and Hispanic), income (i.e., which category best describes your total pre-tax household income last year; coded as 0= < \$15,000 and 1= \$15,000), education (0=No college and 1=Some college completed or higher), and employment (i.e., indicate your employment status as of today; coded as 0=Unemployed and 1=Part-time or higher). Smoking characteristics included number of cigarettes smoked per day and age of onset of regular smoking. The Fagerström Test of Cigarette Dependence (Heatherton, Kozlowski, Frecker, & Fagerström, 1991)—a well-validated six-item measure assessing cigarette dependence severity—was also included to describe the degree of tobacco addiction in the sample.

The Smoking Consequences Questionnaire (SCQ; Brandon & Baker, 1991; Wetter et al., 1994) is a 50-item self-report measure with four subscales that assess four domains of smoking outcome expectancies : (a) negative reinforcement (12 items; e.g., “Cigarettes help me deal with anxiety or worry”); (b) positive reinforcement (15 items; e.g., “When I smoke, the taste is pleasant”); (c) negative consequences (18 items; e.g., “Smoking is taking years off my life”), and (d) weight control (5 items; e.g., “Smoking controls my appetite”). Participants rated each item in a Likert scale format (1= *Not true of me at all* to 7= *Very true of me*) and an average score per item is computed for each subscale.

Data Analysis

Data was analyzed using IBM SPSS Version 21 (IBM Corp., Armonk, NY). Preliminary analyses included reporting descriptive statistics and ethnic and gender comparisons (via chi-squared and ANOVA tests) on sample demographic and smoking characteristics. Primary analyses utilized profile analysis, a MANOVA-based analytic technique (Tabachnick & Fidell, 2001), which allowed for the investigation of differences in between-subjects variable(s) (i.e., gender and ethnic group) across a within-subject variable reflecting different domains within an outcome variable response set (i.e., the four SCQ subscales). Profile analysis tested whether each of three null-type hypotheses were rejected. The *flatness hypothesis* proposes that the mean score (averaged across groups) is equivalent across the four domains of outcomes (i.e., the slope is flat across each response domain). For the current study, rejection of the *flatness hypothesis* would suggest that in the overall sample, cognitions regarding the consequences of smoking are not equivalent across all expectancy subscales (i.e., within-subject effect of subscale). We do not report or interpret analyses of the *flatness hypothesis*, as the focus of this paper is on describing ethnic and gender difference rather than noting trends in expectancies in the overall sample. The *levels hypothesis* proposes that average across response domains the magnitude of scores is equivalent across groups. In this study, rejection of the *levels hypothesis* would suggest that there are significant differences in the overall strength of cognitions regarding the outcomes of smoking (i.e., between-subjects effect of group). Equivalent to standard MANOVA, rejection of the *levels hypothesis* suggest that group profiles differ in magnitude/quantity, such that some groups hold stronger expectancies about smoking overall that generalize across domains. The *parallelism hypothesis* proposes that the extent to which groups differ

from one another is equivalent across response domains. In this study, rejection of the *parallelism hypothesis* would suggest that group profiles differ in shape/quality, such that the nature or degree of group differences varies across the specific expectancy domains (i.e., within-between subject variable interaction between group and subscale).

In profile analyses, we reverse coded the negative consequences SCQ subscale such that each was scored in the pro-smoking direction to facilitate interpretation of levels and parallelism tests. We tested three sets of profile analysis models: (a) 2 (Between: women vs. men) \times 4 (Within: SCQ subscale) a model in which gender was the between-participants group variable; (b) 3 (Between: Non-Hispanic African American vs. Hispanic vs. Non-Hispanic White) \times 4 (Within: SCQ subscale) a model in which ethnicity was the between-subjects group variable; and (c) 3 (Between: Non-Hispanic African American vs. Hispanic vs. Non-Hispanic White) \times 2 (Between: men vs. women) \times 4 (Within: SCQ subscale) three way model to test for interactions across gender and ethnicity. Significant effects leading to the rejection of the *parallelism hypothesis* were followed up in secondary analyses utilizing adjusted ANOVA based on the general linear model for unbalanced cell sizes to investigate the main and interactive effects of gender and ethnicity. For each outcome, each model was tested twice—once unadjusted using ANOVA and once in ANOVA adjusted for education and age because these two sample characteristics significantly differed according to ethnicity (see Table 1), and we followed up significant adjusted ANOVAs involving the ethnicity with pairwise comparisons utilizing pairwise t-tests.

Results

Preliminary Analyses

Descriptive statistics for demographics, smoking characteristics, and SCQ subscales are reported in Table 1 by gender, ethnicity, and for gender within each ethnicity. The sample was predominantly men (68%) and there were significant ethnic differences in education and age (Table 2), therefore, we as adjusted for these covariates in our primary and secondary analyses. Chi-squared tests [$X^2= 10.73$, $p<.01$] showed that 67% of Non-Hispanic Whites reported having attended at least some college vs. 49% of Non-Hispanic African Americans and 40% of Hispanics. Pairwise comparisons showed that Non-Hispanic African Americans were significantly older than Non-Hispanic Whites [$t(280)=4.28$, $p<.0001$] and Hispanics [$t(197)=2.06$, $p<.05$].

Primary Analyses

Ethnicity as the group variable—The *parallelism hypothesis* [$\lambda=0.96$, $F(6, 610)=2.14$, $p<.05$, partial $\eta^2=0.021$]; between-subjects by within-subject interaction between gender and SCQ subscale) was rejected, but the *levels hypothesis* was not [$F(2, 307)=1.27$, $p=.28$], suggesting the ethnic differences in expectancies varied as a function of expectancy domain (i.e., the shape of expectancy profiles differed across ethnicity; see Figure 1). Follow-up adjusted ANOVAs showed significant ethnic differences in the SCQ negative reinforcement subscale, but no ethnic differences on the other SCQ subscales (see Table 2). Pairwise comparisons elucidated that Hispanics endorsed stronger negative reinforcement smoking expectancies than Non-Hispanic African Americans [$t(199)=-2.52$, $p<.05$] and Non-

Hispanic Whites [$t(133)=-3.14, p<.01$], but that Non-Hispanic African Americans and Non-Hispanic Whites did not differ from each other on this domain ($p=.44$).

Gender as the group variable—Both the *levels* ($[F(1, 308)=5.88, p<.05]$; i.e., between-subjects effect of gender) and *parallelism* ($[\lambda=0.93, [F(3, 306)=7.42, p<.0001, \text{partial } \eta^2=0.068]$; between-by-within interaction between gender and subscale) hypotheses were rejected, which indicated that there were gender differences averaged over all SCQ domains and that the nature of gender differences varied as a function of expectancy domain (i.e., qualitative differences in expectancy profile shape; see Figure 2). Follow-up adjusted ANOVAs showed that women scored significantly higher than men on both negative reinforcement and weight control expectancies, but that there were no gender differences on any other SCQ scales (see Table 2).

Gender and ethnicity as concomitant group variables—Tests of the *parallelism hypothesis* regarding the gender \times ethnicity interaction yielded a non-significant trend ($[\lambda=0.96, F(6, 604)=2.08, p=.054, \text{partial } \eta^2=0.020]$; Gender \times Ethnicity \times Subscale three-way between-between-within interaction, see Figure 3). Tests of the *levels hypothesis* were not significant [$F(2, 304)=1.07, p=.34$; Gender \times Ethnicity between-by-between interaction). Follow-up adjusted ANOVAs examining the Gender \times Ethnicity interaction separately for each subscale revealed an interaction for weight control expectancies, but no corresponding interactions for the other expectancy domains (see Table 2). Simple effect analyses to disentangle the interaction showed that Non-Hispanic White women endorsed the weight control smoking expectancies more than Non-Hispanic White men [$t(107)=3.695, p<.0001$], but there were no gender differences among Non-Hispanic African Americans [$t(173)=0.693, p=.49$] and Hispanics [$t(24)=-1.234, p=.23$] on weight control expectancies (see descriptive statistics by gender within ethnicity in Table 1 and profile plots by gender stratified by ethnicity in Figure 3).

Discussion

This study provides novel evidence regarding the role of gender, ethnicity, and their intersectionality in the expression of smoking outcome expectancies. We found qualitative differences in expectancy profiles by gender, such that women (vs. men) reported stronger weight control and negative reinforcement smoking expectancies, yet there were no gender differences in expectancies for positive reinforcement or negative consequences. These findings provide further evidence that women compared to men endorse greater weight control expectancies (Brandon & Baker, 1991; Copeland et al., 1995) and negative reinforcement expectancies (Pang et al., 2015; Pulvers et al., 2004; Weinberger et al., 2010; Wetter et al., 1994). This pattern account for prior findings showing women are at greater risk of relapse following a cessation attempt than men (Bjornson, Rand, Connett, Lindgren, & Et al, 1995; Piper, 2010; Swan, Jack, & Ward, 1997; Wetter et al., 1999) as smokers who report greater negative reinforcement expectancies have been shown to have poorer smoking cessation outcomes (Wetter et al., 1994)..

This study found novel evidence indicating qualitative differences in expectancy profiles by ethnicity, such that Hispanics reported stronger negative reinforcement expectancies than

Non-Hispanic Whites and Non-Hispanic African Americans. Given the small sample of Hispanics in this study, the generalization of these results is yet unknown. If this pattern were to be replicated in future work, one potential area inquiry for future research on the underpinnings of ethnic differences in negative reinforcement expectancies may be ethnic stratification in the experience of negative affect-related states. Previous research has demonstrated that Hispanics endorse greater depressive symptoms in comparison to Non-Hispanic Whites (Blazer, Kessler, McGonagle, & Swartz, 1994; Bock, Niaura, Neighbors, Carmona-Barros, & Azam, 2005). A recent study illustrated that depressed mood was associated with a greater likelihood of currently smoking in Hispanics (Ellis, Orom, Giovino, & Kiviniemi, 2015); thus, among Hispanic smokers, smoking to alleviate negative affect symptomatology could be important. Hispanics are more likely to report perceived discrimination than Non-Hispanic Whites (Purnell et al., 2012), which may explain ethnic differences in psychological distress. Because psychological distress has been shown to mediate the relationship between discrimination and smoking (Purnell et al., 2012), some minority ethnic groups may place higher value on negative reinforcing properties of smoking. However, as Hispanics are poorly represented in the tobacco research literature, our finding potentially marks an important insight into this population and provides a basis for future study.

We also found evidence of possible intersectionality between gender and ethnicity on weight control (but not other forms of) smoking expectancies. Weight control smoking expectancies were stronger in women versus men in Non-Hispanic Whites, but did not differ by gender among Hispanics or Non-Hispanic African Americans. A prior study in adolescents showed that Non-Hispanic White adolescent girls reported smoking to lose or control weight as a reason for smoking more often than Hispanic and Non-Hispanic African American girls (Fulkerson & French, 2003). Cultural differences in acceptance of a wider range of body shapes and sizes for women may influence the salience of smoking's weight controlling effects as a function of ethnicity. Although Non-Hispanic African Americans have higher prevalence rates of obesity than Non-Hispanic Whites (Patel et al., 2011; Pomerleau, Zucker, Namemek, et al., 2001), they are more likely to be satisfied with their body shape (Schwartz & Brownell, 2004), and are less likely to perceive themselves as overweight than Non-Hispanic White (Robinson, Webb, & Butler-Ajibade, 2011). Furthermore, Hispanics do not differ from Non-Hispanic African Americans in body image attitudes or distress (Hrabosky & Grilo, 2007) and in self-perception of being overweight (Paeratakul, White, Williamson, Ryan, & Bray, 2002). Therefore, Hispanic and Non-Hispanic African American smokers may not be as concerned with controlling their weight as Non-Hispanic White smokers. Additionally, these results are consistent with studies showing that gender differences in weight expectancies exist in studies utilizing samples that have a high proportion of Non-Hispanic Whites (Copeland et al., 1995), but no gender differences in studies using an Non-Hispanic African American sample (Pulvers et al., 2004).

Several limitations in this study are worth noting. First, our use of self-report measures may be more vulnerable to response biases, which has been shown to differ by ethnicity (Bardwell & Dimsdale, 2001). While self-report is the most common and ideal standard for assessing expectancies; alternative methods that assess the accessibility or degree to which expectancies are activated from memory might be useful (Hendricks & Brandon, 2005).

Second, although our inclusion of Hispanics as an ethnic group in our sample is novel in smoking outcome expectancy research, it is a small sample (N=26) in comparison to our samples of Non-Hispanic African Americans (N=175) and Non-Hispanic White (N=109), which may have decreased the power to detect differences involving this group. Additionally, we did not distinguish between Hispanic subgroups based on country of origin or other differentiating factors. Future studies should investigate Hispanic subgroup differences in expectancies as previous reports suggest that smoking behavior differs between Puerto Ricans and Dominicans (Borrelli, Hayes, Gregor, Lee, & McQuaid, 2011). Third, our sample was collected via convenience and was restricted to a single geographic area; hence, future extension to other locations is warranted to enhance generalizability.

This study offers novel data on smoking expectancies as a possible mechanism to consider in gender and ethnic disparities in smoking (American Cancer Society, 2014; Gadgeel & Kalemkerian, 2003; Haiman et al., 2006; Jemal et al., 2008; Siegel et al., 2011; Underwood et al., 2012; USDHHS, 1998). Future studies should utilize an intersectionality approach (Cole, 2009), by considering one's concurrent multiple ethno-cultural or gender-specific identities to elucidate the psychosocial and socio-cultural context that may influence smoking-related cognitions and behaviors. Our findings suggest that, more broadly, certain cognitions relevant to smoking may not manifest when exploring gender and ethnicity independently, but becomes apparent when both factors are considered. Therefore, intersectionality of ethnicity and gender should be considered in smoking cessation programs to target smoking-related cognition that might be more salient in some combinations of gender and ethnicity, but perhaps not others.

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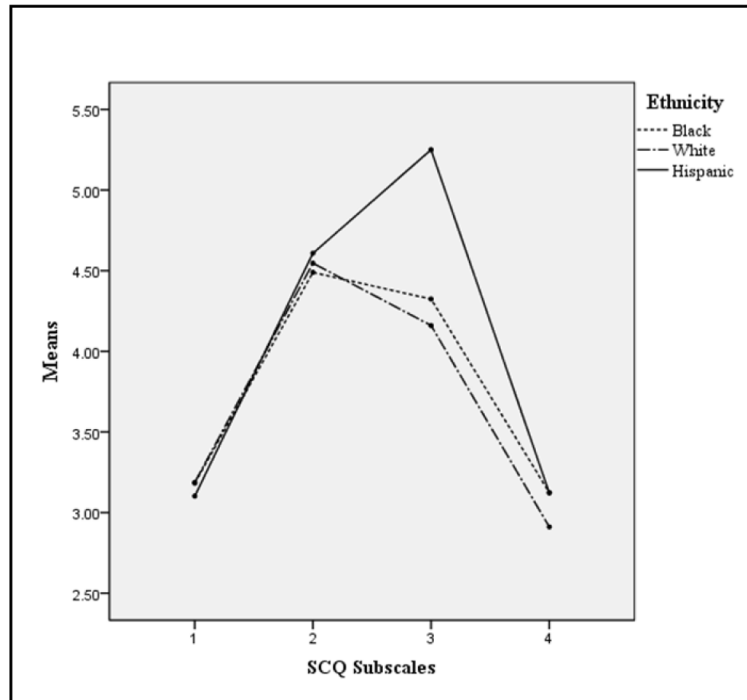


Figure 1. Profile Plots for Main Effects by Ethnicity

Note: SCQ = Smoking Consequences Questionnaire subscales (range 1-7; 1 = *Negative Consequences*, 2 = *Positive Reinforcement*, 3 = *Negative Reinforcement*, 4 = *Weight Control*).

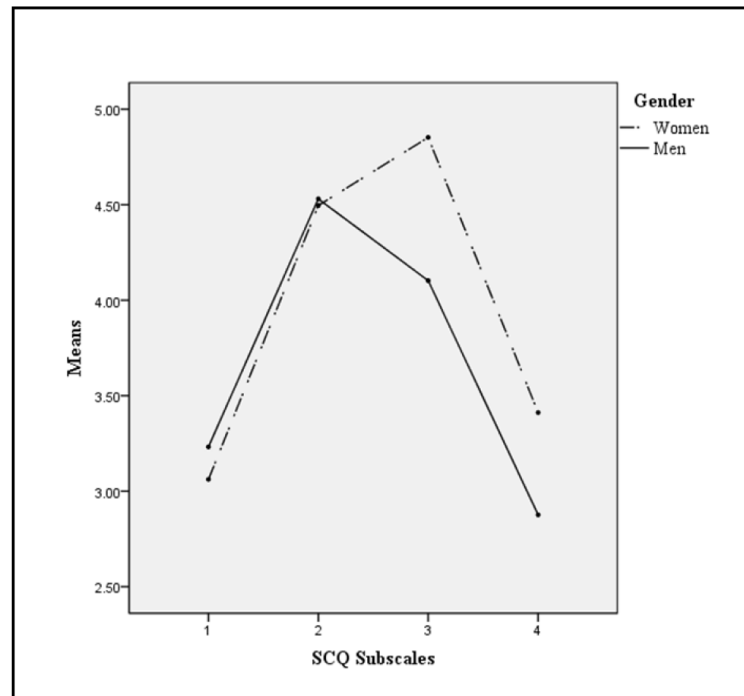


Figure 2. Profile Plots for Main Effects by Gender

Note: SCQ = Smoking Consequences Questionnaire subscales (range 1-7; 1 = *Negative Consequences*, 2 = *Positive Reinforcement*, 3 = *Negative Reinforcement*, 4 = *Weight Control*).

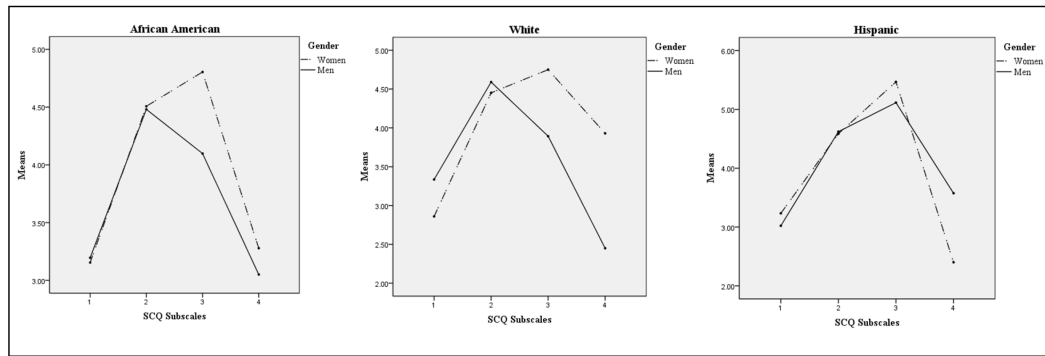


Figure 3. Profile Plots for Main Effects by Ethnicity × Gender

Note: SCQ = Smoking Consequences Questionnaire subscales (range 1-7; 1 = Negative Consequences, 2 = Positive Reinforcement, 3 = Negative Reinforcement, 4 = Weight Control).

Table 1

Baseline Characteristics by Ethnicity and Gender

Variable: <i>M (SD) or %</i>	Overall Sample (<i>N</i> = 311)		African American (<i>N</i> = 175)		White (<i>N</i> = 109)		Hispanic (<i>N</i> = 26)	
	Women (<i>N</i> =56)	Men (<i>N</i> =119)	Women (<i>N</i> =34)	Men (<i>N</i> =75)	Women (<i>N</i> =10)	Men (<i>N</i> =16)		
Demographics								
Age	44.42 (10.56)	44.04 (11.36)	47.95 (8.52)	40.8 (11.86)	42.70 (12.28)	42.38 (7.59)		
Annual Income								
< \$15,000	59.5	54.9	58.2	60.9	66.7	53.3		
\$15,000	40.5	45.0	41.7	39.1	33.3	46.7		
Education								
No College	44.9	55.6	48.3	29.3	44.4	68.8		
Some College or Higher	55.1	44.4	51.7	70.6	55.5	31.3		
Employment								
Unemployed	75.6	77.8	74.6	74.6	88.9	81.3		
Part-Time or Higher	24.4	22.2	25.4	25.4	11.1	18.8		
Smoking Characteristics								
Age onset regular smoking	19.12 (5.60)	19.55 (5.32)	19.39 (6.16)	19.36 (5.59)	17.10 (4.80)	18.19 (5.0)		
FTND	5.43 (1.93)	5.57 (1.75)	5.47 (1.96)	5.26 (1.75)	5.90 (1.66)	5.69 (2.09)		
Cigarettes/day	16.77 (7.05)	15.25 (6.87)	16.28 (8.0)	17.71 (6.52)	16.80 (5.37)	17.17 (6.32)		
SCQ								
Negative Consequences	3.17 (1.18)	3.15 (1.24)	3.20 (1.08)	3.34 (1.18)	3.23 (0.93)	3.02 (1.11)		
Positive Reinforcement	4.52 (1.20)	4.51 (1.12)	4.48 (1.14)	4.59 (1.31)	4.59 (1.15)	4.62 (1.30)		
Negative Reinforcement	4.34 (1.72)	4.80 (1.88)	4.10 (1.71)	3.89 (1.50)	5.47 (1.17)	5.11 (1.57)		
Weight Control	3.05 (2.06)	3.28 (2.19)	3.05 (1.95)	2.45 (1.73)	2.40 (1.85)	3.58 (2.62)		

Note: FTND = Fagerström Test of Nicotine Dependence (range 0-10); SCQ = Smoking Consequences Questionnaire (range 1-7).

* $p < .05$,

** $p < .01$,

*** $p < .001$,

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ANOVA Models for Main Effects of Ethnicity and Gender, and Ethnicity × Gender Interaction for Individual SCQ Subscales

Table 2

	Ethnicity Main Effect	Gender Main Effect	Ethnicity × Gender Interaction
	<i>F</i> or <i>X</i> ²	<i>t</i> or <i>X</i> ²	<i>F</i> or <i>X</i> ²
Demographics			
Age	9.76 ^{****}	-1.27	2.15
Gender	0.52	0.2	-
Women			
Men			
Annual Income	1.02	0.11	0.78
< \$15,000			0.44
\$15,000			
Education	10.73 ^{**}	1.12	0.70
No College			2.22
Some College or Higher			
Employment	1.24	0.05	0.36
Unemployed			0.47
Part-Time or Higher			
Smoking Characteristics			
Age onset regular smoking	1.07	0.2	0.20
FTND	1.11	0.45	0.02
Cigarettes/day	2.65	-0.81	0.07
SCQ			
Negative Consequences ^a	0.06, 0.57 ^a	-1.19	1.34, 0.96 ^a
Positive Reinforcement	0.15, 0.02 ^a	-0.24	0.14, 0.01 ^a
Negative Reinforcement	4.31 [*] , 3.24 ^{a*}	3.65 ^{****}	0.23, 0.31 ^a
Weight Control	0.37, 0.07 ^a	2.15	5.17 ^{**} , 4.13 ^{*a}

Note: FTND = Fagerström Test of Nicotine Dependence (range 0-10); SCQ = Smoking Consequences Questionnaire (range 1-7).

^a Adjusted models (covariates: education & age).

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 $p < .0001$

 $p < .01$
**
 $p < .05$
*

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