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Differences in quit attempts between non-Hispanic Black and White daily smokers: The role of smoking motives

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HIGHLIGHTS
• Non-Hispanic Black smokers fail to quit more often than non-Hispanic White smokers.
• The role of smoking motives in this racial difference in quit attempts was examined.
• Smoking motives mediated the relationship between race and failed quit attempts.
• Black smokers endorsed lower motives and more quit attempts than White smokers.
• Black smokers are vulnerable to failed quit attempts despite lower smoking motives.

Abstract

Introduction: The prevalence of smoking across racial/ethnic groups has declined over the years, yet racial health disparities for smoking persist. Studies indicate that non-Hispanic Black smokers attempt to quit smoking more often compared to non-Hispanic White smokers but are less successful at doing so. Research suggests that motives to quit smoking differ by race, however, less is known about the role of motives to smoke in explaining racial differences in attempts to quit smoking.

Methods: This study examined whether smoking motives accounted for the differential rates in quit attempts between non-Hispanic Black (n = 155) and non-Hispanic White (n = 159) smokers. Data were culled from a larger study of heavy-drinking smokers. The Wisconsin Index of Smoking Dependence Motives (WISDM) assessed motives to smoke.

Results: As expected, Black and White smokers reported similar smoking patterns, yet Black smokers reported higher rates of failed attempts to quit smoking than White smokers. Findings indicated that Black, compared to White, smokers endorsed lower scores in the negative reinforcement, positive reinforcement, and taste WISDM subscales and scores in these subscales mediated the relationship between race and quit attempts.

Conclusions: In this study, Blacks, compared to Whites, endorsed lower motives to smoke, which are generally associated with successful quit attempts, yet they experienced more failed attempts to quit smoking. This study demonstrates racial health disparities at the level of smoking motives and suggests that Black smokers remain vulnerable to failed quit attempts despite reporting lower motives to smoke.

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1. Introduction

Cigarette smoking is the leading cause of preventable death in the United States (U.S.), accounting for approximately 480,000 deaths per year (U.S. Department of Health & Human Services, 2014). Population studies indicate that 26.7% of adults in the U.S. smoke cigarettes, with nearly equal smoking rates between non-Hispanic Black (28.7%) and non-Hispanic White (28.9%) smoking adults (SAMHSA, 2012). Yet, Black smokers experience more tobacco-related health problems than their White counterparts. For example, Black smokers are more likely to develop and die from lung cancer than White smokers, despite the fact that Black smokers begin smoking later in their lifetime (American Cancer Society, 2011; Fagan, Moolchan, Lawrence, Fernander, & Paris, 2007; SAMHSA, 2012). Similarly, Black, compared to White, smokers are less successful at quitting even though Black smokers attempt to quit at higher rates than their White counterparts (Fagan et al., 2007; Kahende, Malarcher, Teplinskaia, & Asman, 2011).
In efforts to understand racial health disparities related to tobacco-use, studies have focused on examining differences in barriers as well as motives to successfully quit smoking between Black and White smokers. For instance, a study on barriers/obstacles to quit smoking found that White smokers identified enjoyment of smoking and stress relief equally as their main barriers, whereas Black smokers reported that stress relief was the most important barrier while endorsing enjoyment of smoking as a much less important obstacle (Theobald, Smith, & Fiore, 2005). Similarly, an examination of ethnic differences in reasons/motives for wanting to quit smoking among adolescents (Luther, Bagot, Franken, & Moolchan, 2006) found that White smokers endorsed current health concerns (e.g., “coughing up phlegm, throat irritation”) as their motivation to quit whereas Black smokers endorsed general health concerns (e.g., “it’s bad for me”) as their main motive for wanting to quit. Although there is some evidence that differences in barriers/obstacles to and motives/reasons for quitting smoking may help explain racial differences in tobacco use between White and Black smokers, less is known about whether racial differences in motives or reasons for smoking may also help elucidate the differential rates of failed quit attempts between Black and White smokers.

To that end, the aims of this brief report were to (1) examine whether non-Hispanic Black daily smokers reported more failed quit attempts than their non-Hispanic White counterparts and (2) test whether smoking motives mediate this difference. It was hypothesized that Black daily smokers would report more failed quit attempts than White smokers. Due to the limited data on racial differences in smoking motives, the proposed mediation analyses were exploratory.

2. Method

2.1. Participants and procedures

Participants were drawn from a community sample of non-treatment seeking daily smokers who drank heavily and responded to an ad for a medication study. The ad specified that it was not a treatment protocol for smoking or drinking problems. The medications utilized in the study were varenicline and naltrexone. While these medications can help in smoking cessation, they were only used 9–12 days, which is not enough to produce much clinical benefit (for further details see Ray et al., 2014). Interested participants were screened for eligibility through a phone interview. Eligible participants were non-treatment seeking daily smokers (smoked ≥ 10 cigarettes per day) who were also heavy drinkers, consistent with the National Institute on Alcohol Abuse and Alcoholism guidelines of ≥ 14 drinks/week for men and ≥ 7 for women. Individuals were excluded from participation in the study if they endorsed a serious medical condition in the past 6 months (e.g., hepatic or renal disease), regular drug use other than cannabis, current depression or suicidal ideation assessed with the Beck Depression Inventory (BDI-II), or other psychiatric problems such as bipolar disorder and schizophrenia.

Data for the present study were culled from the in-person intake assessment before eligible participants (N = 427) were randomized to a medication study. A total of 74% participants identified as non-Hispanic Black and non-Hispanic White and were selected for analyses. Of this sample, approximately 49% of participants identified as non-Hispanic Black (n = 155) and 51% identified as non-Hispanic White (n = 159). Participants were, on average, 36.29 (SD = 10.7) years old and 31% were female. Participants reported smoking approximately 14 (SD = 8.15) cigarettes daily.

2.2. Measures

Participants reported the number of times they made an attempt to quit smoking lasting longer than 24 h in the past year. The distribution of this variable was positively skewed therefore responses were grouped into three categories: 0–3, 4–5, and 6 or more quit attempts.

Smoking motives were assessed with the Wisconsin Inventory of Smoking Dependence Motives (WISDM; Piper et al., 2004). The WISDM asks participants to rate 68 statements on a 7-point Likert scale ranging from “not true of me at all” to “extremely true of me” and yields 13 subscales of smoking motives (Table 1) including negative reinforcement, positive reinforcement, and taste/sensory processes. The negative reinforcement subscale assesses the desire to smoke to relieve negative internal states such as dysphoria and stress with statements such as “Smoking a cigarette improves my mood.” The positive reinforcement subscale measures the desire to smoke to experience a “buzz” or “high” with statements including “Smoking makes me feel good.” The taste/sensory subscale assesses the orosensory and/or gustatory effects of smoking with statements such as “The flavor of a cigarette is pleasing.”

2.3. Analytic strategy

A series of ordinary least squares and logistic regressions were conducted using PROC LOGIT in SAS Statistical Software V9.1. First, racial differences in smoking patterns were tested (a path). Second, racial differences in each WISDM subscale were tested to identify potential mediators (b path). Next, the WISDM subscales that were identified as potential mediators were examined in separate mediation models following the Preacher and Hayes (2008) recommendations for bootstrapping indirect effects. That is, the indirect effect (c′) was calculated as the product of the coefficient representing the relationship between the predictor and the proposed mediator (a path) and the coefficient representing the relationship between the mediator and the outcome (b path). Bootstrapping yields a percentile-based confidence

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* p < .05.  ** p < .01.
interval where the null hypothesis of no indirect effect is tested by
determining whether the confidence interval includes zero (Preacher &
Hayes, 2008). Bootstrapping the indirect effects is superior to other
procedures as this approach does not assume that the distribution of
indirect effects is normal (Preacher & Hayes, 2008).

3. Results

Non-Hispanic Black and White smokers did not differ in the number of
drinks, total number of drinks, number of cigarettes smoked, average
number of cigarettes per smoking day, and total number of cigarettes in
the past month (ps > .05). Consistent with the hypothesis, Black daily
smokers reported more failed quit attempts than their White counter-
parts (β = .48, SE = 0.21, χ² = 52.2, p < 0.05).

Table 1 illustrates the results of each step in the mediation analysis.
Mediation tests indicated that behavioral choice and craving
underlying differential health outcomes between Black and White smokers
failed attempts to quit smoking. These results may inform clinical interventions.
By identifying tractable mediators of racial health disparities between Black and White smokers on quit attempts,
treatment programs can be tailored to address these mechanisms. In
this case, results suggest that smoking cessation interventions may
help reduce tobacco-related health disparities by recognizing that
lower endorsement of some smoking motives are less consistently linked to quit attempts in Black, compared to White, smokers.

Results from this study should be interpreted within its strengths and
limitations. Results may not be generalizable to a broader popula-
tion of cigarette smokers as the present sample is comprised of heavy
drinking smokers only, a sizeable, yet somewhat distinct subset of
smokers (Littleton, Barron, Prendergast, & Nixon, 2007). The study
was limited to non-treatment seeking participants and the measure of
quit attempts was retrospective. Nevertheless, this study included a
large sample of non-treatment-seeking daily smokers from the commu-
nity most of whom were nicotine dependent.

4. Discussion

The aims of this brief report were to examine whether daily
non-Hispanic Black and White smokers reported a higher number of failed quit
attempts compared to their non-Hispanic White counterparts and to
explore the role of smoking motives in explaining this difference. Consistent
with previous findings (Kahende et al., 2011), no differences were
found in smoking behaviors between Black and White daily smokers.
However, non-Hispanic Black daily smokers made more failed quit attempts in the past year than non-Hispanic White smokers. A
subset of smoking motives helped explain this difference. Specifically,
Black, compared to White, daily smokers were less motivated to smoke
to experience the positive reinforcement, negative reinforcement,
and taste/sensory processes related to smoking, which in turn were
associated with failed attempts to quit smoking.

These results are consistent with a racial health disparities model
where similar levels of cigarette smoking are associated with worse health
consequences in Black smokers (American Cancer Society, 2011; Fagan et al., 2007; SAMHSA, 2012). The present study found
that the overall assertion that lower endorsement of smoking motives
generally indicates a lower severity of nicotine dependence (Piper et al., 2004) and in turn a greater capability to quit smoking successfully,
may not true for Black daily smokers. That is, Black daily smokers, com-
pared to their White counterparts, endorsed being less motivated to
smoke to experience the positive reinforcement, negative reinforce-
ment, and taste/sensory processes related to smoking. However, en-
dorsing lower motivation to smoke did not appear to be sufficient to
help Black daily smokers successfully quit smoking. These results may
inform clinical interventions. By identifying tractable mediators of racial health disparities between Black and White smokers on quit attempts,
treatment programs can be tailored to address these mechanisms. In
this case, results suggest that smoking cessation interventions may
help reduce tobacco-related health disparities by recognizing that
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Contributors

Guadalupe A. Bacio conducted data analysis and wrote the first draft of the manuscript.
Iris Y. Guzman conducted literature searches, summarized previous studies, and helped to
conduct data analysis; Jenessa Shapiro supervised interpretation and integration of results
with existing literature. Lara A. Ray designed the study, directed data collection, and super-
vised data analysis. All authors contributed to and have approved the final manuscript.

Conflict of interest

LAR is a paid consultant for GSK. None of the authors have any other conflicts of interest to
disclose.

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