

Brief Report

Adolescent menthol smokers: Will they be a harder target for cessation?

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[Received 24 June 2002; accepted 29 October 2003]

Menthol smoking may influence the development of tobacco addiction and related health consequences, yet limited data on menthol smoking by youth are available. We assessed usual brand menthol preference by Baltimore-area teenage smokers applying to a smoking cessation study between September 1999 and December 2002. Of a biethnic (Black and White) sample of 593 youths (mean age = 15.5 ± 1.4 years, 51% female, 45% African American), the overwhelming majority (93%) were menthol smokers. Menthol preference rates were highest among African American girls and lowest among White boys. Overall, a statistically significant association was found between ethnicity and menthol preference, $\chi^2 (df=1) = 19.4, p < .001$. This association also was observed separately for girls, $\chi^2 (df=1) = 9.21, p = .0024$, and for boys, $\chi^2 (df=1) = 9.59, p = .0020$. Menthol smoking did not vary with age in either ethnic group. These findings of overwhelming menthol preference in a treatment-seeking sample of adolescents warrant further research on the developmental trajectory, cessation, and health-related impact of menthol smoking by youth.

Introduction

Smoking menthol cigarettes may affect smoking topography (Ahijevych & Parsley, 1999; Clark, Gautam, & Gerson, 1996), propensity to tobacco addiction (Henningfield et al., 2003), and exposure to toxic and carcinogenic constituents (N. L. Benowitz, unpublished data; Schmeltz & Schlotzhauer, 1968; Sidney, Tekawa, Friedman, Sadler, & Tashkin, 1995). Among women, menthol smokers showed significantly larger puff volumes and cotinine levels compared with nonmenthol smokers (Ahijevich & Parsley). The authors hypothesized anesthetizing and cooling effects of menthol (Eccles, 1994) that allowed greater smoke exposure by decreasing the burning sensation of cigarette smoke. Epidemiological studies of the association between menthol smoking and various forms of cancer have produced both positive (Sidney et al., 1995) and negative (Kabat & Wynder, 1987)

results. Menthol also may complicate quitting efforts: Compared with nonmenthol smokers, fewer menthol smokers under age 50 years achieved cessation in a bupropion-assisted smoking cessation trial (Okuyemi, Ahluwalia, Ebersole-Robinson, Catley, & Mayo, 2003).

Smoking typically begins in youth. Preliminary findings from cessation-seeking adolescents who smoke menthol cigarettes daily suggest greater enjoyment of smoking and fewer quit attempts (necessary precursor to cessation), especially among those who smoked 4 or more years, compared with nonmenthol smokers (Moolchan, Aung, Malson, & Pickworth, 2002; Thatte, Aung, & Moolchan, 2002). These factors could contribute to the maintenance of smoking behavior once it is initiated. Examination of the extent of menthol smoking in this subset of established adolescent smokers is important because most daily teenage smokers will continue to smoke as adults (Chassin, Presson, Sherman, & Edwards, 1990) and incur both duration- and intensity-related health consequences of smoking. This inference is cautioned by the lack of data showing that adolescent menthol smoking persists into adulthood. Nonetheless, given the relationship between daily smoking in youth and difficulty quitting during later adulthood (Khuder,

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Dayal, & Mutgi, 1999), menthol smoking could “harden” the cessation target and increase adverse health effects for this cohort. Therefore, as an initial goal, we assessed the prevalence of menthol preference in a biethnic sample of teenage cessation-seekers applying to a smoking cessation study. The known preference for menthol cigarettes among African American adults (Cummings, Giovino, & Mendicino, 1987) and evidence of similar tobacco industry targeting of Black youth prompted the ethnic comparison (Cummings, Morley, Horan, Steger, & Leavell, 2002).

Method

Sample

Participants in this study were Baltimore-area teenage smokers who responded via telephone to broadly targeted print, radio, and television advertisements or community outreach (e.g., at schools and churches) for an outpatient teenage smoking cessation study of medication and group therapy. Youths aged 13–17 years who called in to request treatment between September 1999 and December 2002 were included in this analysis.

Procedure

Because the telephone interview was intended for use in prescreening for the cessation trial, it contained a limited number of questions covering sociodemographics and tobacco consumption. Ethnic group category was determined by asking callers, “Which of the following best describes your ethnographic background: White, African American, Native American, Latino/Hispanic, or Asian?” Participants were asked to indicate their current usual brand of smoking followed by whether they usually smoked menthol or nonmenthol cigarettes.

Before analyzing these data, the personal identifiers of participants who did not qualify for the treatment protocol were removed. The current screening study was thus separately approved with a waiver of informed consent by the National Institutes of Health Office of Human Subject Research.

Data analysis

Frequencies of menthol and nonmenthol preference were obtained for all adolescents and compared between ethnicities for the whole sample, using chi-square tests. Comparisons were repeated after stratifying girls and boys by ethnicity. For all statistical tests, a *p* value of less than .05 was considered statistically significant. Analyses were conducted using Microsoft Excel 2000.

Results

Of the 1,273 Baltimore youths who applied via telephone between September 1999 and December 2002, we obtained data on current menthol smoking preferences for 622 youths, of whom 593 identified themselves as either African American or White (Table 1). The table also provides a breakdown of menthol vs. nonmenthol smoking preferences by ethnicity and gender.

Menthol preference rates were highest among African American girls and lowest among White boys. Overall, a statistically significant association was found between ethnicity and menthol preference, χ^2 ($df=1$)=19.4, $p<.001$. This association also was observed separately for girls, χ^2 ($df=1$)=9.21, $p=.0024$, and for boys, χ^2 ($df=1$)=9.59, $p=.0020$. When the sample was divided into age group tertiles, menthol smoking did not vary with age in either ethnic group (data not shown).

Discussion

The greater preference of African American youth for menthol cigarettes found in the current analysis is consistent with data from adult smokers (Cummings et al., 1987; Giovino et al., 2004) and recent observations of preferential targeting of menthol cigarettes to African American youth (Cummings et al., 2002). However, rates of menthol smoking in both African American and White adolescents seeking to participate in our treatment trial were much higher than those recently reported from nationally representative samples (Giovino et al.). Our findings indicate that vigilance is warranted because of mounting evidence that menthol smoking may be perceived as less harmful, exacerbate the addictive and other deleterious consequences of tobacco (Henningfield et al., 2003), and potentially reduce the effectiveness of quitting strategies for addicted smokers (Okuyemi et al., 2003).

Table 1. Menthol vs. nonmenthol smoking by ethnicity and gender ($N=593$).

	African American ($n=271$; 45.7%)	White ($n=322$; 54.3%)
Age (years) (average = 15.5 ± 1.4)	15.7 ± 1.3	15.3 ± 1.4
Total menthol smokers	267***	289
Menthol		
Female	147 (99.3%)**	143 (92.3%)
Male	120 (97.6)**	146 (87.5%)
Nonmenthol		
Female	1 (0.7%)	12 (7.7%)
Male	3 (2.4%)	21 (12.6%)

Note. Statistical significance of between-ethnicity comparisons: * $p<.05$, ** $p<.01$, *** $p<.001$.

Although African American youths in our sample showed greater menthol preference, we did not find the stark ethnic contrasts described among adult smokers (Cummings et al., 1987). Our findings seem consistent with data showing that adolescents smoke the most heavily advertised brands (Johnston, O'Malley, Bachman, & Schulenberg, 1999). Additionally, given Baltimore's predominantly Black population, applicants of both ethnicities may have been heavily targeted by local advertisements for menthol cigarettes due to geographical proximity; no local surveys are available to confirm this possibility. A previous report, also from Baltimore, showed an atypically high rate of menthol smoking among White methadone clinic attendees (Clemmey, Brooner, Chutuape, Kidorf, & Stitzer, 1997); however, menthol smoking prevalence in our treatment-seeking sample of adolescents remained approximately twofold higher than what those investigators reported. We conjecture that cultural or other effects that account for ethnic differences in menthol smoking among adults may have been substituted by yet other possible influences in this sample. A more unified "teen-centric" image-related culture may be emerging (Ribisl, Lee, Henriksen, & Haladjian, 2003). Alternatively, some adoption by White youth of African American inner-city culture may foster menthol smoking, perhaps somewhat in parallel to current cross-cultural musical preferences for "rap" and "urban" music (Brown & Williamson, 2003). Also, influences from drug-using or rave culture known to favor menthol cigarettes may have occurred. Although we did not ask telephone applicants about their marijuana use, approximately 60% of the subsequent trial enrollees (both ethnicities) reported smoking marijuana blunts (gutted cigars filled with marijuana) at some point. Such adolescent blunt use was associated with higher rates of menthol smoking in nationally representative samples (Giovino et al., 2004).

In summation, we found overwhelming preference for menthol cigarettes in a treatment-seeking sample of Baltimore adolescents. We conclude that although current strategies of price increases, smoke-free policies, and advertising and marketing restrictions can reduce the prevalence of tobacco addiction among youth (Centers for Disease Control and Prevention, 2003), further investigation of factors that contribute to menthol smoking and its effects on the course of youth tobacco use and cessation seems warranted.

Acknowledgments

This research was supported by National Institute on Drug Abuse intramural funds. The author wishes to thank Pamela Clark, Phillip Gardiner, Mirjana Djordjevic, and Robert Robinson for their

comments and is grateful to Jennifer Schroeder, Darrell Hudson, and the staff of NOVA and the Teen Tobacco Addiction Treatment Research Clinic for technical assistance.

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