

Title: Menthol and filter ventilation in cigarettes: Prevalence, harm perception, and smoking exposure

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Introduction: Both menthol and FV contribute to appeal of cigarettes, suggesting that regulation should be implemented on both. This descriptive study examines the U.S. prevalence of menthol versus non-menthol cigarette use by filter ventilation (FV) and how harm perceptions, cigarettes per day (CPD) and biomarkers of exposure (BoE) vary.

Methods: Population Assessment of Tobacco and Health Study (2013-2014) was merged with FV levels of cigarettes purchased in 2014-2015 and restricted to adults who smoked daily, had a usual cigarette variety, and did not regularly use other tobacco (N=1614). Weighted descriptive statistics identified the prevalence of menthol and non-menthol use by low (0.02-10.04%), moderate (10.05-23.40%), high (23.41-28.12%), and very high FV (28.13-61.10%). Weighted linear regression was used to examine differences in harm perception, CPD and BoE, including total nicotine equivalents (TNE), by menthol and FV groups adjusting for confounders.

Results: Prevalence of having a usual brand that was non-menthol low FV was the lowest at 2.91%. Among those using non-menthol cigarettes, high and very high FV ($\geq 23.4\%$) versus low FV ($\leq 10.04\%$) cigarette use was associated with a greater likeliness of misperceiving their cigarette brand to be less harmful than other brands (p -values <0.05). TNE, a biomarker for nicotine exposure, was significantly elevated (p -values <0.05) among three of the non-menthol groups (i.e., low, moderate, and very high FV) compared to two of the menthol groups (i.e., moderate and very high FV).

Conclusion: Results shed light on the types of non-menthol cigarettes that may be more appealing, due to harm misperceptions, and suggest non-menthol cigarettes with elevated FV ($\geq 23.4\%$) may contribute to maintaining some consumers after a menthol ban. BoE point to the need for future studies to examine the potential impact of combined regulation on menthol and FV versus on menthol alone.