CURRENT AND FORMER SMOKERS' OPINIONS OF POTENTIAL TOBACCO REGULATORY ACTIONS BY THE FDA

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INTRODUCTION

The Surgeon General acknowledged the health risks associated with smoking in 1964[1]; however, it was not until 2009 that the Food and Drug Administration (FDA) gained regulatory power over tobacco products with the passage of the Family Smoking Prevention and Tobacco Control Act (FSPTCA).[2] Among other powers, the Act grants the FDA the authority to ban menthol and reduce nicotine yields in cigarettes. These actions could reduce initiation and increase cessation rates, saving hundreds of thousands of lives[3,4]; however, as was the case with "light" cigarettes, there is some concern that regulation may lessen the public's risk perception of tobacco products, increasing youth experimentation and reducing adults' interest in cessation.[5]

The success of the FSPTCA will depend on how well it is implemented through strict regulation of the tobacco industry. The FDA is currently examining the impact of banning menthol in cigarettes; reducing nicotine will also be considered in coming years. As of yet, public support for these regulatory actions is unclear. As public health policy is both a scientific and political endeavor,[6] it is imperative that we assess public receptiveness towards potential FDA regulatory actions.

METHODS

Data for this study is drawn from the second follow-up of the EX Smoker Cohort, used to evaluate Legacy's EX cessation media campaign. See Box 1 for more information about the parent study.

MEASURES

Respondents were asked to endorse the following three items on a 5-point scale including "strongly agree", "neither agree nor disagree", "strongly disagree" and "don't know":

1. Government regulation of cigarettes will make cigarettes safer;
2. The government should reduce the amount of nicotine in cigarettes to help smokers quit;
3. Menthol flavoring in cigarettes should be banned.

In addition to these outcomes variables, respondents also provided information on:

1. Sex
2. Age
3. Education
4. Race/ethnicity
5. Political views
6. Smoking status
7. Smoking-related cognitions & behavior

Responses for the three dependent variables were collapsed into "agree", "disagree", "neither agree nor disagree", and "don't know." Only the "political views" item included missing observations; these were assessed to be Missing Completely at Random (MCAR).

DATA ANALYSIS

The multivariate model was constructed using constructs from health behavior (theory of reasoned action and the transtheoretical models) and concepts from political science. We hypothesized that:

1. Former smokers would be more supportive of potential FDA regulatory actions than current smokers.
2. Smokers who are closer to the Action stage of the transtheoretical model will be most supportive of potential FDA regulatory actions.
3. Current and former smokers who have conservative political views will be least supportive of potential FDA regulatory actions.

Using Stata 11.0[7], both a weighted and unweighted analysis was conducted to obtain demographic and point estimates for opinions of potential FDA regulatory actions. Bivariate statistical significance was estimated with the Rao-Scott test. Multivariate results were obtained with design-based logistic regressions, using a dichotomous dependent variable and ignoring respondents who answered "neither agree nor disagree."

BOX 1: EX Smoker Cohort Background[8]

Purpose: Evaluation of the EX Campaign, a branded mass-media campaign to encourage smokers to quit.

Population: Smokers 18-49 years old, living in one of eight designated market areas (DMA):
- Birmingham, AL
- Columbus, OH
- Fort Smith–Fayetteville, AR
- Houston, TX
- Kansas City, MO
- Phoenix–Prescott, AZ
- Pittsburgh, PA
- Portland, OR

DMAs chosen for population size & variation with respect to factors that may influence cessation outcomes, such as location, racial/ethnic composition, tobacco control policy, smoking prevalence

Methods & Sampling: Longitudinal, stratified random sample of 8 DMAs using RDD CATI. Oversample of Hispanic smokers.
- Baseline (2008): N=5,616 smokers, 66% response rate
- 1st follow-up (2008): N=4067 current and former smokers, response rate = 73%
- 2nd follow-up (2010): N=3,638 current and former smokers, response rate = 63.2%

RESULTS

Table 1: Unweighted and weighted sample characteristics: Current and former smokers (N=3,658)

	Unweighted	Weighted (95%CI)
"Ban menthol"[a]		
Agree	23.6% (863)	24.2% (21.9, 26.3)
Disagree	61.0% (2,230)	61.3% (59.0, 63.6)
Neither agree nor disagree	14.4% (527)	13.7% (12.2, 15.2)
"Reduce nicotine"[a]		
Agree	53.5% (1,956)	55.1% (52.6, 57.6)
Disagree	6.9% (251)	37.8% (35.3, 40.3)
Neither agree nor disagree	39.5% (1,445)	7.0% (5.5, 8.5)
"Safer cigarette"[a]		
Agree	29.1% (1,064)	29.1% (27.1, 31.2)
Disagree	63.0% (2,306)	63.5% (61.5, 65.4)
Neither agree nor disagree	0.55% (20)	7.1% (6.0, 8.3)
Sex		
Male	45.2% (1,653)	55.5% (55.5, 55.5)
Female	54.8% (2,005)	44.5% (44.5, 44.5)
Race/ethnicity		
White non-Hispanic	74.4% (2,721)	71.7% (71.3, 72.1)
Black, non-Hispanic	11.8% (432)	10.6% (9.9, 11.3)
Hispanic	7.0% (256)	12.1% (11.7, 12.5)
Other	6.8% (249)	5.6% (4.9, 6.4)
Age		
18-24	13.3% (486)	22.0% (20.9, 23.0)
24-44	58.2% (2,129)	58.3% (56.6, 59.9)
45+	28.5% (1,043)	19.7% (18.4, 21.1)
Education		
<HS diploma	18.8% (688)	25.1% (23.8, 26.4)
HS diploma/GED	39.5% (1,444)	27.1% (26.5, 27.7)
Some college	30.7% (1,122)	36.9% (35.4, 38.3)
College degree	11.0% (404)	11.0% (10.9,11.0)
Smoking status		
Current smoker	88.6% (3,239)	88.9% (87.2, 90.5)
Former smoker	11.4% (419)	11.1% (9.5, 12.8)
Political views		
Liberal	23.1% (845)	22.9% (21.1, 24.8)
Moderate	37.4% (1,368)	38.2% (36.1, 40.2)
Conservative	32.3% (1,181)	31.3% (29.0, 33.5)
Don't know/refuse	7.2% (264)	7.6% (6.6, 8.7)
Quit attempts[b]		
No quit attempts	70.7% (2,290)	69.7% (67.7, 71.7)
1 or more quit attempts	29.3 (949)	30.4% (28.3, 32.3)
Risk of smoking exaggerated		
Agree	19.3% (705)	19.2% (17.7, 20.6)
Disagree	76.0% (2,780)	77.0% (75.3, 78.7)
Neither agree nor disagree	4.5% (164)	3.7% (3.0, 4.4)
Smoke menthol[b]		
Yes	28.9% (937)	27.1% (25.2, 29.1)
No	71.1% (2,302)	72.9% (70.9, 74.8)
Intention to quit[b]		
Not thinking of quitting	33.2% (1,075)	33.4% (31.3, 35.6)
Quitting in next 6 months	50.0% (1,619)	49.4% (46.7, 52.0)
Quitting in next 30 days	16.8% (545)	17.2% (15.4, 19.1)

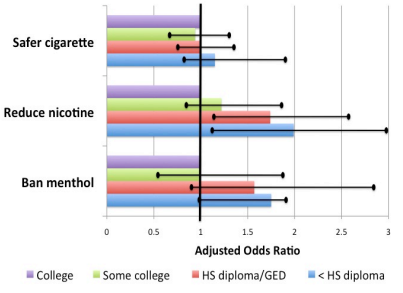
[a] For original item wording, see Methods
[b] Among current smokers only

Table 2: Adjusted odds ratios for agreeing that menthol should be banned, nicotine reduced, and that government regulation will lead to a safer cigarette: Current smokers only (N=3,239)

	AOR Agree: Menthol (95% CI)	AOR Agree: Nicotine (95% CI)	AOR Agree: Safer (95% CI)
Sex			
Male	1.27 (.93, 1.72)	.95 (.75, 1.21)	1.12 (.88, 1.42)
Race/ethnicity			
Black, non-Hispanic	3.27 (2.06, 5.18)	2.23 (1.41, 3.21)	1.31 (.86, 2.0)
Hispanic	2.22 (1.30, 3.78)	2.07 (1.18, 3.65)	1.49 (.97, 2.30)
Other	1.23 (.72, 2.08)	1.52 (.99, 2.32)	1.21 (.74, 1.99)
Age			
24-44	1.29 (.93, 1.80)	.94 (.71, 1.26)	.94 (.66, 1.34)
45+	1.50 (.99, 2.26)	.96 (.66, 1.41)	1.00 (.70, 1.44)
Education			
< HS diploma	1.75 (.96, 3.16)	1.99 (1.33, 2.98)	1.15 (.72, 1.85)
HS diploma/GED	1.57 (.91, 2.73)	1.74 (1.16, 2.61)	.99 (.70, 1.38)
Some college	.99 (.56, 1.76)	1.22 (.82, 1.81)	.94 (.66, 1.33)
Intention to quit			
Quitting in next 6 months	1.43 (1.03, 1.97)	2.70 (2.04, 3.57)	1.08 (.85, 1.39)
Quitting in next 30 days	2.37 (1.62, 3.47)	3.92 (2.63, 5.85)	1.15 (.79, 1.67)
Political views			
Moderate	1.13 (.79, 1.62)	.99 (.77, 1.30)	1.03 (.76, 1.40)
Conservative	1.30 (.93, 1.83)	1.04 (.81, 1.36)	.98 (.73, 1.32)
Don't know/refuse	.94 (.57, 1.53)	.84 (.52, 1.38)	.55 (.33, .91)
Risk of smoking exaggerated			
Agree	1.10 (.83, 1.46)	.64 (2.04, 3.57)	.58 (.29, 1.24)
Neither agree nor disagree	.56 (.29, 1.08)	1.60 (1.25, 2.03)	1.04 (.77, 1.40)
Smoke menthol			
No	3.40 (2.48, 4.66)	n/a	n/a

Note: Reference groups are as follows: sex (female), race/ethnicity (White non-Hispanic), age (18-24), education (college degree), intention to quit (no intent to quit), political views (liberal) risk of smoking (disagree), smoke menthol (yes).

Figure 1: Adjusted odds ratios for agreeing that menthol should be banned, nicotine reduced, and that government regulation will lead to a safer cigarette by education: Current smokers only (N=3,239)



Note: Reference group is "college".

Hypothesis 1
- In all cases, former smokers were more supportive of FDA regulation than current smokers (results not shown).

Hypothesis 2
- Position in the transtheoretical model was a significant predictor of support for banning menthol and reducing nicotine (Table 2).

Hypothesis 3
- Political views were not related to support for FDA regulatory actions (Table 2).

Other interesting findings include:

Point estimates
- 24.2% (95% CI: 21.9, 26.3) of current and former smokers support a menthol ban (Table 1).
- 55.1% (95% CI: 52.6, 57.6) of current and former smokers support reducing nicotine (Table 1).
- 29.1% (95% CI: 27.1, 31.2) believe that government regulation will lead to a safer cigarette (Table 1).

Race/ethnicity
- In unadjusted analyses, White and African American current and former smokers vary considerably when asked if menthol should be banned (22% v. 34% p<0.001) and if nicotine should be reduced (53% vs. 67%, p<0.001) (results not shown).

Education
- Multivariate results for both smokers only and former and current smokers combined shows that support for banning menthol and reducing nicotine increases with decreasing education levels (Table 2, Figure 1).

DISCUSSION & CONCLUSIONS

LIMITATIONS

- Due to its focus the 8 DMAs where the EX media campaign was evaluated, the Ex Smoker Cohort is not a nationally-representative sample. Attrition between the baseline and 2nd follow-up observations could have resulted in further biases. Though weighting has been employed to approximate national data, results should not be generalized to the general population of former and current smokers.

- Random-digit dial recruitment may under sample cell phone only households, especially youth and minorities.

CONCLUSIONS

- Current and former smokers with the least education are the most supportive of government regulation of cigarettes. This suggests an awareness of the importance of structural interventions in situations where behavior change is most difficult.

- African American and Hispanic smokers are significantly more supportive of potential FDA regulatory actions than White smokers. Taken with the previous finding concerning education, this indicates that those with the least privileged position in society are most open to government intervention for the sake of their health.

- In addition, findings suggest that smokers who are interested in quitting are open to government regulation of cigarettes.

REFERENCES

1. Surgeon General's Advisory Committee on Smoking and Health. *Smoking and health: United States Public Health Service; 1964.*
2. Family Smoking Prevention and Tobacco Control Act, 21 USC. *Vol HR 1256. Public Law 111–312009.*
3. Levy D, Pearson J, Villanti A, et al. Modeling the effects of a menthol ban on smoking-attributable deaths in the United States. *Am J Public Health. 2011;under review.*
4. Hatsukami DK, Perkins KA, LeSage MG, et al. Nicotine reduction revisited: science and future directions. *Tobacco Control. 2010;19(5):e1-e10.*
5. Shiffman S, Pillitteri JL, Burton SL, Rohay JM, Gitchell JG. Smokers' beliefs about "Light" and "Ultra Light" cigarettes. *Tobacco Control. December 1, 2001 2001;10(90001):i17-23.*
6. Quon NC, B. *Decisions at scientific agencies: How do the NIH and the FDA balance expert opinions, changing agendas, and political pressure?* US: Dissertation Abstracts International: Section B: The Sciences and Engineering, ProQuest Information & Learning; *2007.*
7. *Stata Statistical Software: Release 11 [computer program]. College Station, TX: StataCorp LP; 2009.*
8. Vallone DM, Duke JC, Cullen J, McCausland KL, Allen JA. Evaluation of EX: A national mass media smoking cessation campaign. *Am J Public Health. 2010;e1-e8.*

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