

USE OF FLAVORED CIGARETTES AMONG BRAZILIAN ADOLESCENTS: A STEP TOWARD NICOTINE ADDICTION?

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Background

Menthol, candy and fruit-flavored cigarettes are products marketed by tobacco companies as extensions to popular cigarette brands. They improve the taste of cigarettes, mask smoking irritating effect and are usually targeted to youth encouraging experimentation^{1,2}.

Some studies have shown that adolescents who experience fewer adverse physiological effects during experimentation are more likely to progress to regular smoking. It was also found that menthol and sugar may make cigarettes more addictive³.

The Guidelines for the implementation of Articles 9 and 10 of the WHO-FCTC recommend that Parties regulate and prohibit some tobacco products additives like flavorings and sugar⁴. Brazil is underway to ban them on tobacco products commercialized in the country⁵.

Goal

This study aimed to describe the characteristics of flavored cigarettes use among scholars in Brazil and to access whether adolescents who mainly smoke flavored cigarettes are more likely to smoke with higher frequency and to progress to nicotine addiction than adolescents who mainly smoke non-flavored cigarettes.

Methods

Data analyzed came from a cross-sectional school-based survey with 13-15 years old students, in 13 Brazilian capitals who participated in the Global Youth Tobacco Survey (GYTS) between 2005-2009 (n=17,127). Anonymous self-administered questionnaires were answered in classrooms using a multistage probability sample design. We defined flavored smokers as scholars who ever smoked cigarettes and answered "menthol", "vanilla" or "other flavored" to the question: "What flavor has the cigarette that you smoke more?".

Analysis used Stata version 10 statistical software, which adjusted for survey design effects in calculating sample variances. Uni and bi-variables analysis were conducted.

Multiple logistic regressions were used to calculate the adjusted odds of smoking 2 or more cigarettes per day (*versus* less than 2) and smoking 3 days or more in the past 30 days (*versus* less than 3) for flavored smokers relative to non-flavored smokers.

Results:

Thirty point four percent (95% c.i. 28.2%; 32.6%) of boys and 36.5% (95% c.i. 34.1%; 38.9%) of girls had ever tried smoking cigarettes. The percentage who smoked at least one day in the past 30 days was, respectively 9.5% (95% c.i. 8.3%; 10.7%) and 12.6% (95% c.i. 10.6%; 14.7%) (**Table1**).

Among adolescents ever tried cigarettes, 58.2% (95% c.i. 52.7%; 63.5%) of males and 52.9% (95% c.i. 48.7%; 59.0%) of females had flavored cigarette as their first choice brand. Menthol cigarettes were the most consumed among those who smoked brands with flavor, representing the first choice of 37.2% (95%c.i. 32.3%; 42.3%) of boys and 38,9% (95%c.i. 35.1%; 44.8%) of girls smokers (**Figure 1**). A higher proportion of students who used flavored cigarette brands as their first option (60.8%, 95%c.i. 55.9; 65.5), reported that the taste was the most important reason for brand choice when compared to their counterparts (33.1%, 95%c.i. 22.8%; 38.8%) (**Figure 2**). Adjusted by gender, age, type of school (public versus private) and city where the data was collected, smokers who preferred flavored cigarettes were more likely to consume more cigarettes in the day they smoke (adjOR = 1.57, 95% c.i. 1.05; 2.35) and to smoke a greater number of days in the past 30 days (adjOR = 1.62, 95% c.i. 1.07; 2.47) than smokers who preferred cigarettes without flavor (**Figure 3**). Non difference was found to felt an urge to smoke immediately after waking up.

Discussion and conclusion:

Overall use of flavored cigarettes among Brazilian adolescent smokers is very high. The findings indicated that students who consumed mainly flavored cigarette brands smoked a higher number of cigarettes and with greater frequency, and therefore were more likely to develop nicotine dependence. Brazil should speed up the process of prohibiting mentholated and other flavored cigarettes aimed at reducing their palatability and therefore reduce smoking initiation and prevalence of tobacco use. These findings also support the recent calls to ban menthol flavoring in cigarettes.

Table 1. Characteristics of the study population (n= 17,127)

Demographic characteristics	%	(95% c.i.)
% Males	44.4	(22.1; 28.3)
Age		
13	25.2	(21.0 ; 26.2)
14	34.2	(31.4; 37.1)
15	40.6	(36.0; 45.2)
% Students from public schools (x private schools)	69.1	(58.2; 80.1)
Smoking prevalence	%	(95% c.i.)
Ever smoked cigarettes, even one or two puffs		
Males	30.4	(28.2; 32.6)
Females	36.5	(34.1; 38.9)
Smoked cigarettes on 1 or more days of the past 30 days		
Males	9.5	(8.3; 10.7)
Females	12.6	(10.6; 14.7)

Figure 1. Percentage of scholars 13-15 y.o. who ever smoked cigarettes by type of cigarette brand they smoke more. Brasil, 13 capitals, 2005-2009

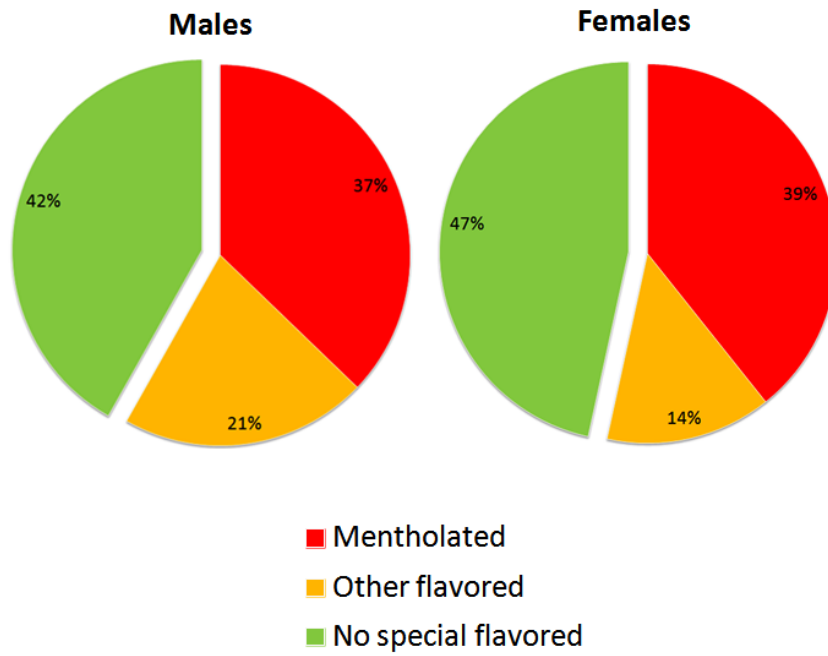


Figure 2. Distribution of flavored and non-flavored cigarette smokers* by reasons to choose the cigarette brand Brazil, 13 capitals, 2005-2009

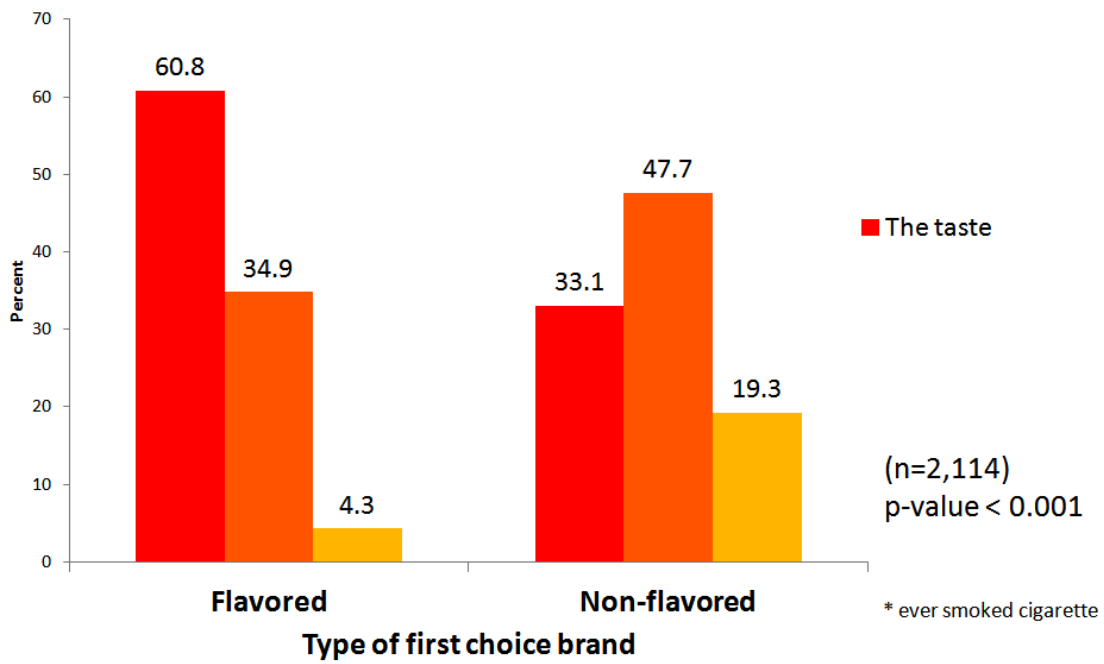
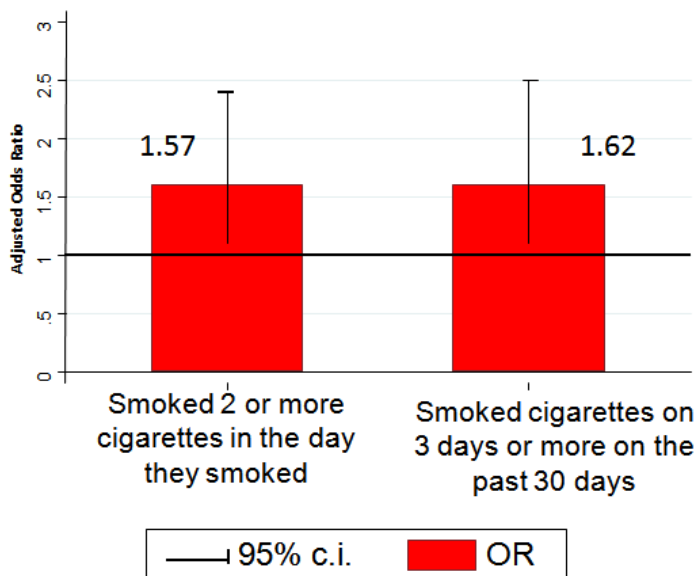


Figure 3. Adjusted odds ratio (OR) for some indicators of intensity and frequency of smoking, comparing flavored to non-flavored cigarette smokers



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