



Short Communication

Was it the drink? The conditioned association of alcohol and desire to quit smoking on the dual use of little cigars/cigarillos and cigarettes among men and women



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HIGHLIGHTS

- LCC users were more likely to be male, younger, and to report other drug use.
- Alcohol frequency was negatively correlated with desire to quit smoking.
- Men who drank frequently who wanted to quit smoking used LCCs most frequently.

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ABSTRACT

Introduction: Dual use of little cigars/cigarillos (LCCs) with cigarettes is becoming more popular; especially among men, but infrequently studied. Dual tobacco users show a higher prevalence of health-risk behaviors such as drug and alcohol use, are likely exposed to higher levels of nicotine and tobacco-related toxicants, and have greater difficulty quitting and maintaining abstinence. This study examined the effects of alcohol use, and desire to quit smoking on dual use of LCCs and cigarettes among men and women.

Methods: Data utilized responses from a screening survey of 571 adult smokers. Basic demographic information, current cigarette use, desire to quit smoking, frequency of current LCC use, and alcohol and drug use were collected.

Results: Dual users were more likely to be male and younger, report drug use in the past 90-days, and have a lower desire to quit smoking. Regression analyses showed a 3-way interaction of gender, alcohol use frequency, and desire to quit smoking, such that men who drank alcohol more frequently who had a higher desire to quit smoking used LCCs more frequently than men with a lower desire to quit.

Discussion: Alcohol use may be a risk factor for men's dual use of LCCs and cigarettes among those who want to quit smoking. Implications for prevention and treatment are discussed.

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1. Introduction

The use of large cigars and little cigars/cigarillos (LCCs) are increasing despite recent declines in cigarette use (Control, C.f.D. and Prevention, 2012). Dual use of cigars and LCCs with cigarettes is also becoming increasingly common, with approximately 15% to 35% of current cigarette users reporting LCC use (Cohn et al., 2015a; Richardson, Xiao, & Vallone, 2012; Rath et al., 2012; Lee et al., 2014). LCCs may be appealing because they can be sold individually instead of in packages of 20 (making them a cheaper alternative to cigarettes), they are perceived

as less harmful than cigarettes (Cohn et al., 2015a; Sterling, Fryer, & Fagan, 2015; Smith, Curbow, & Stillman, 2007), and many are offered in characterizing flavors (chocolate, strawberry) that mask the harshness of inhaled smoke. LCCs show similar health-related outcomes as cigarettes (Boffetta et al., 1999; Iribarren et al., 1999), making their use with cigarettes a significant public health concern.

Dual users of cigarettes and LCCs are more likely to be male (Cohn et al., 2015a; Richardson et al., 2012), to consume alcohol (Schuster, Hertel, & Mermelstein, 2012), and report greater alcohol and drug-related problems (Cohn et al., 2015a; Richardson et al., 2012). The link between drinking and dual use of LCCs and cigarettes is concerning because alcohol is correlated with a variety of poor tobacco-related outcomes, including greater nicotine dependence, lower motivation to quit smoking (Martin et al., 2006), and less success at quitting

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(Humfleet et al., 1999; Raherison et al., 2005). Dual use of LCCs and cigarettes could be linked to greater alcohol use and lower desire to quit smoking for several reasons. First, alcohol lowers inhibitions, making someone more inclined to use a tobacco product. Laboratory data shows that acute alcohol intoxication can reduce women's, but not men's ability to resist cigarettes (Kahler et al., 2012). The same might be true for LCCs. Additionally there is a robust association between marijuana and alcohol use (Falk, Yi, & Hiller-Sturmhöfel, 2008). Blunt smoking (replacing the tobacco inside of a cigar with marijuana) is becoming increasingly popular (Sterling et al., 2015; Delnevo, Bover-Manderski, & Hrywna, 2011), and thus alcohol and LCC use may be associated through their link to marijuana use. Third, people who are attempting to quit smoking cigarettes may substitute LCCs for cigarettes because LCCs are perceived as less addictive and harmful than cigarettes (Sterling et al., 2015; Nyman, Taylor, & Biener, 2002).

Despite known links among the dual use of LCCs and cigarettes with greater alcohol use and lower motivation to quit smoking, and the robust gender disparity in tobacco and alcohol use, no study has examined whether these factors operate in conjunction with each other in predicting dual use of LCCs with cigarettes. The current study examined the effect of alcohol use and desire to quit smoking on the frequency of LCC use across male and female cigarette smokers. We hypothesized that male dual users who have higher rates of alcohol use and lower desire to quit smoking would use LCCs more frequently than females and other males with lower rates of alcohol use and higher desire to quit smoking.

2. Methods

2.1. Procedure and participants

Data were from 571 adult smokers who responded to web and print advertisements for an observational study of the naturalistic change outcomes of heavy drinking smokers wanting to quit smoking in the next 6-months. Advertisements asked for “smokers who are regular drinkers”, and directed individuals to complete either an online survey or call a telephone number to determine eligibility (screening items described below and in prior published work (Cohn et al., 2015b)).

2.2. Demographics, alcohol, and tobacco use

As part of the eligibility questionnaire, participants provided information on demographics, current cigarette use (< or > 10 cigarettes/day in the past year), frequency of LCC use in the past 3 months (0 = “never”; 1 = “one or two times in the past three months”; 2 = “once per month”; 3 = “once every two weeks”; 4 = “once per week”; 5 = “two or four times per week”; 6 = “almost every day/daily”), quantity (drinks/episode) and frequency (days/week) of alcohol consumed in the past 90-days, drug use (yes/no) in the past 90-days, and desire to quit smoking in the next six months (1 = “no, definitely not” to 5 = “yes, definitely”). Dual use was defined as those who consumed LCCs in the last 3 months and at least 1 cigarette in the past year.

2.3. Data analysis

We first examined prevalence and distributions of demographic factors, desire to quit smoking in the next 6-months, and quantity and frequency of LCC and alcohol use. Outliers for alcohol quantity that were ± 3 standard deviations above/below the mean were excluded from all analyses ($n = 13$). ANOVA tests and Pearson correlation coefficients examined differences between LCC and non-LCC users on variables of interest (i.e., demographics, alcohol use, desire to quit smoking). Next, we tested whether the association between alcohol use (separately for quantity and frequency) and frequency of LCC use was moderated by both gender and desire to quit smoking, using recommendations by Aiken and West (1991). Desire to quit smoking and

alcohol use scores were z-transformed to reduce multi-collinearity and to account for scale invariance. Then using gender (male = 1, female = 0), z-alcohol use (continuous), and z-desire to quit smoking (continuous), a regression equation was computed with relevant covariates entered in the first step, main effects in the second step, all two-way interactions in the third step, and the three-way interaction in the final step. Unstandardized betas are reported.

3. Results

3.1. Demographics

As shown in Table 1 the sample was middle aged ($M = 38.51$; $SD = 13.68$); male (57.0%), African American (64.8%), single (65.3%), and had some college education or higher (56%). Almost half (42.7%) were employed; 85.8% smoked at least 10 cigarettes/day in the past year; and 23.9% reported any drug use in the past 90-days.

3.2. Differences between LCC users and non-users

Table 1 one also shows differences between LCC users and non-users. Nearly a third of the sample (28.7%) used LCCs in the past 3-months. LCC users had lower desire to quit smoking [$F(1,519) = 5.76$, $p < 0.05$]; were more likely to be male [$\chi^2(1) = 10.03$, $p < 0.01$]; younger [$F(1,520) = 35.16$, $p < 0.001$]; and to report other drug use [$\chi^2(1) = 25.04$, $p < 0.001$] relative to non-LCC users.

Frequency of LCC use varied: 22.7% used almost daily, 22.7% used two to four times per week, 18.0% used once per week or once every two weeks, 8.0% used once per month, and 28.0% used one or two times in the past three months.

Table 1

Demographics and baseline differences between cigarette smokers who did and did not use little cigars/cigarillos in the past 3 months.

	Total sample (N = 522)	LCC users (n = 150; 28.7%)	Non-LCC users (n = 372; 71.3%)	p
	% (n)	% (n)	% (n)	
Gender				0.002
Male	56.5 (295)	67.3 (101)	52.2 (194)	
Female	43.5 (227)	32.7 (49)	47.8 (178)	
Marital				0.14
Single	65.3 (341)	70.7 (106)	63.2 (235)	
Married/relationship	18.1 (95)	15.3 (23)	19.4 (72)	
Other	16.6 (86)	14.0 (21)	17.4 (65)	
Race				0.01
White	24.5 (128)	18.0 (27)	27.2 (101)	
African American	64.8 (338)	67.3 (101)	63.7 (2327)	
Other	10.7 (56)	14.7 (22)	9.1 (34)	
Education				0.41
<H.S. diploma	9.0 (47)	6.7 (10)	9.9 (37)	
H.S. diploma/GED	35.0 (183)	36.0 (54)	34.8 (129)	
>Some college	56.0 (292)	57.3 (86)	55.3 (206)	
Employment				0.94
Employed	42.7 (223)	40.7 (61)	43.5 (162)	
Unemployed	34.3 (179)	34.0 (51)	32.8 (122)	
Other	23.0 (120)	25.3 (38)	23.7 (88)	
Drug use (yes)	23.9 (125)	38.7 (58)	18.0 (67)	0.001
Desire to quit smoking				0.02
No, definitely not	4.2 (22)	6.7 (10)	3.2 (12)	
No, probably not	4.4 (23)	4.0 (6)	4.6 (17)	
Unsure	18.8 (98)	24.0 (36)	16.7 (62)	
Yes, probably	26.9 (140)	26.0 (39)	27.2 (101)	
Yes, definitely	45.7 (238)	39.3 (59)	48.2 (179)	
	M (SD)	M (SD)	M (SD)	
Age	38.51 (13.68)	33.09 (12.35)	40.69 (13.60)	0.001
Alcohol quantity	5.00 (3.30)	4.83 (3.30)	5.06 (3.30)	0.47
Alcohol frequency	4.46 (2.10)	4.33 (1.94)	5.06 (3.30)	0.36

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