



# MOTIVATION AND CONFIDENCE IN QUITTING AFTER A BRIEF SMOKING CESSATION INTERVENTION FOR A PREDOMINANTLY HISPANIC SAMPLE OF COLLEGE STUDENTS

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## Introduction

- Coronary heart disease and stroke, the primary types of cardiovascular disease associated with smoking, are the first and third leading causes of death in the United States (CDC, 2004).
- College remains a susceptible time for both smoking onset and continued smoking (Rigotti, Lee, & Wechsler, 2000; Wetter et al., 2004). It has been observed that college-aged individuals are more likely to begin and continue smoking (Rigotti, Lee, & Wechsler, 2000), as well as are more likely than adults to switch between light and daily smoking (Wetter et al., 2004).
- While many students attempt to quit smoking, few succeed (Patterson, Lerman, Kaufmann, Neuner, & Audrain-McGovern, 2004). Despite declines in smoking prevalence, college smoking rates remain high. It is estimated that 31% of college students have smoked in the past thirty days (Johnston, O'Malley, Bachman, & Schulenberg, 2007).
- There is a dearth of research with regard to light smokers and the efficacy of smoking cessation interventions in this growing population. Understanding how to help light smokers quit smoking is an important public health concern that warrants assessment (Okuyemi, Ahluwalia, Richter, Mayo, & Resnicow, 2001).
- Brief interventions that include motivational enhancement have been shown to reduce tobacco use among college students (Borsari & Carey, 2000). However, the impact of brief interventions may differ as a function of smoking status.
- This study examined the impact of smoking status on satisfaction and intention to quit smoking subsequent to a brief cessation intervention provided in the student health center.
- It was hypothesized that satisfaction with the intervention would be high, and intention to quit post intervention would also be high. No a priori hypotheses were established with regard to differences between groups based on smoking status.

## Method

### Participants

• 125 college students on the university's campus consented to participate, 82 returned a two-week follow-up survey. Participants who reported having smoked within the past 30 days were eligible to participate. The mean age was 23.6 ( $SD = 5.8$ ), 53 % were female, 54% self-identified as Hispanic, and 17% self-identified as Mexican National.

### Measures

- **Tobacco History Assessment:** Participants reported current and past tobacco use in a standard smoking intake.
- **Fagerström Test of Nicotine Dependence (FTND)** (Heatherton, Kozlowski, Frecker, & Fagerström, 1991): Six item questionnaire assessed nicotine dependence at baseline. Scores can range between 1 and 10, with higher scores indicating greater nicotine dependence. Cronbach's alpha was 0.53.
- **University of Rhode Island Change Assessment (URICA)** (McConaughy, Prochaska, & Velicer, 1983): Four 8-item scales assess stage of change; each item measures level of agreement on a scale of 1 to 5, in which higher scores indicate characteristics related to each stage. Cronbach's alphas were 0.72 for Precontemplation, 0.87 for Action, and 0.89 for Contemplation and Maintenance. This measure was completed at baseline and follow-up to detect stage movement.
- **Smoking Decisional Balance (Long Form)** (Velicer, DiClemente, Prochaska, & Brandenburg, 1985): 20-item questionnaire which includes two scales measuring pros and cons of smoking. Scores on each scale can range from 10 to 50 with higher scores indicating higher levels of importance of smoking pros and cons. Cronbach's alphas were 0.81 and 0.80 for the pros and cons scales, respectively. This measure was completed at baseline and follow-up.
- **Bedfont Scientific EC50 - Micro III Smokerlyzer.** Participants' carbon monoxide level (CO) was measured at baseline using a CO monitor (Hald, Overgaard, & Grau, 2003).
- **Satisfaction and Intention Follow-Up Survey.** Self-administered at the two week follow-up to assess participant satisfaction with and potential benefits of the program. Questions assessed participants' overall satisfaction, satisfaction with cessation advice, knowledge of smoking costs and cessation benefits, thinking about costs and benefits subsequent to intervention, thinking about quitting, desire to quit, confidence in ability to quit, and the likelihood of quitting in the next week, month, and three months. Response options ranged from 1 (e.g., *less satisfied, not likely*) to 6 (e.g., *more favorable, more likely*).

**Table 1: Baseline Characteristics of Participants (N = 115)**

Smoking Status	Daily / Weekly		Experimental		
Categorical Demographic Variables	N	%	n	%	Difference
Gender					$\chi^2 (1) = .03, p = ns$
Male	40	47	14	48	
Female	46	53	15	52	
Ethnicity					$\chi^2 (3) = 5.03, p = ns$
Mexican National	16	20	2	7	
Hispanic	40	49	19	68	
Continuous Demographic Variables	Mean	SD	Mean	SD	
Age of First Use of Tobacco	15.48	3.03	15.69	2.77	$t (112) = .33, p = ns$
Expired Carbon Monoxide Level Cigarettes Per Day	6.49	6.53	1.29	1.44	$t (107) = -4.17, p < .01$
	7.3	5.26	-	-	
Nicotine Dependence	1.85	1.88	0.7	0.76	$t (101) = -2.87, p < .01$

Note: categorical *n*'s may not sum to overall total because of missing values.

**Table 2: Daily and Weekly Vs. Experimental Smokers Satisfaction and Perceived Impact of Intervention**

	Daily / Weekly		Experimental		
Post-Intervention Survey Question	Mean	SD	Mean	SD	<i>d</i>
Satisfaction with Intervention	4.26	1.29	4.50	1.28	$t (72) = .71, p = ns$
Satisfaction with Advice to Quit	4.41	1.32	4.90	1.30	$t (73) = 1.47, p = ns$
Knowledge of Costs and Benefits of Smoking	4.07	1.60	4.38	1.20	$t (73) = .79, p = ns$
Thinking More about Costs Now	4.22	1.37	4.10	1.52	$t (73) = -.35, p = ns$
Likelihood of Quitting:					
In the next week	3.13	1.84	4.57	1.75	$t (73) = 3.08, p < .01$
In the next month	3.40	1.83	4.67	1.74	$t (72) = 2.73, p < .01$
In the next 3 months	3.83	1.79	4.76	1.70	$t (72) = 2.04, p < .05$
Program Influenced Thoughts of Quitting	4.06	1.54	3.76	1.79	$t (72) = -.71, p = ns$
Desire to Quit	6.66	2.78	7.95	2.84	$t (72) = 1.79, p = .08$
Confidence in Quitting	7.40	2.51	8.95	1.43	$t (72) = 2.66, p < .01$

## Methods cont.

### Procedure

- Informed consent was obtained.
- Participants completed surveys and participated in an individual counseling session which included: CO feedback; exploration of interest and confidence in quitting, assessment of personal motivators to continue or quit smoking; tipping the scales in favor of quitting; handout review of smoking costs, quitting benefits, and external resources for cessation; and setting a quit date if appropriate.
- Follow-up surveys were mailed to be completed 2 weeks after the intervention.
- Participants received 10 dollars for their participation.

## Approach to Analyses and Results

### Approach to analyses

- For the purposes of this presentation, only data from the Tobacco History Assessment, FTND, CO monitor, and satisfaction and intention follow-up survey were analyzed.
- Descriptives were used to provide participant characteristics at baseline. Chi square and t-tests were used to assess differences between those smoking at least weekly (daily and weekly smokers) and those smoking less than weekly (experimental smokers).
- Satisfaction with the intervention was analyzed using t-tests, and follow-up reports of intentions to quit were analyzed using Friedman's  $\chi^2$ . Wilcoxon sign rank post hoc tests determined between group differences in intention to quit.

### Results

- At baseline, experimental smokers had significantly lower CO levels and lower levels of nicotine dependence (See Table 1). Attrition was not predicted by smoking status (daily and weekly vs. experimental) gender, ethnicity, age, nicotine dependence, CO, or age of first use (all  $p$ 's  $> .14$ ).
- At follow-up, satisfaction and perceived impact of the intervention on participants' likelihood of quitting were all rated significantly higher than the midpoint of the scale (all  $p$ 's  $< .001$ ). Daily and weekly smokers reported less likelihood of quitting in the next week, month, and 3 months (see Table 2), as well as less desire and confidence in quitting.
- Within experimental smokers, the likelihood of quitting within the next week, month, or 3 months was not significant,  $\chi^2 (2) = 2.47, p > .29$ ; however, for daily and weekly smokers, there were significant differences between likelihood of quitting over time,  $\chi^2 (2) = 32.35, p < .001$ . Post-hoc comparisons revealed that individuals reported less likelihood of quitting in the next week relative to the next month,  $Z = -3.36, p < .001$ , and the next three months,  $Z = -4.36, p < .001$ , as well as less likelihood of quitting within the next month relative to the next three months,  $Z = -3.99, p < .001$ .

## Discussion

- Participants in this study had extremely low levels of CO and nicotine dependence, which is consistent with existing literature suggesting that both Hispanics and college students smoke relatively infrequently (Colder et al., 2006; Kandel & Chen, 2000).
- Although all smokers indicated a greater likelihood of quitting smoking in the next week, month, and three months, these effects were more pronounced for experimental smokers, while daily smokers showed a greater intention to quit over time. Thus, higher levels of smoking were associated with intentions to quit that are more distal in nature.
- Consistent with findings suggesting brief intervention is effective in college students in general (Borsari & Carey, 2000; Sussman, 2001), a brief motivationally-oriented smoking cessation intervention may facilitate motivation to quit in young adult lighter smokers. For daily/weekly young adult Hispanic smokers however, interventions may wish to also focus on self-efficacy building to promote confidence in quitting in addition to motivational enhancement toward cessation.
- The utilized student health center approach seems feasible and satisfying to participants and promotes intention to quit smoking. Using university health centers as a resource to screen for smokers has been recommended and offers an opportunity for cessation treatments.
- Future directions include developing student health center approaches specific to light and intermittent smokers, as well as assessing efficacy of the intervention, relative to a control condition.

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