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The Influence of Smoking Cigarettes on the High and Desire for Cocaine among Active Cocaine Users

Alex J. Brewer III*, James J. Mahoney III, Chandra S. Nerumalla, Thomas F. Newton, and Richard De La Garza II

Baylor College of Medicine, Menninger Department of Psychiatry and Behavioral Sciences, Houston, TX

Abstract

The primary aim was to evaluate whether nicotine use alters the high or desire for cocaine among active cocaine users who concurrently smoke cigarettes. Participants answered the Fagerstrom Test for Nicotine Dependence (FTND), Nicotine-Stimulant Interaction Questionnaire (NSIQ), and Multiple Drug Use Questionnaire (MDUQ). These questionnaires employ subject recall of participants' drug use habits. The participants that smoked (N=163/188) were primarily African American males who were 45.0±0.5 (mean±S.E.M.) years of age, and used cocaine for 17.9±0.6 years and 19.8±0.6 days out of the last 30. These individuals smoked 14.0±0.8 cigarettes/day (CPD), scored 4.6±0.2 (on a scale of 0–10) on the FTND, and smoked cigarettes for 23.5±0.7 years. Two questions from the MDUQ, which evaluates the interaction between cocaine and nicotine, (–5: reduces effect, 0: no change, +5: increases effect) included “Does nicotine affect the high that you experience from cocaine?” and “Does nicotine affect your desire for cocaine?”, and the scores were 1.3±0.2 and 0.8±0.2, respectively. The NSIQ also evaluated interactive effects of nicotine and cocaine, on a scale of 0 to 100 (0: not at all, 100: most ever). Smokers responded most strongly that using cocaine increased both the urge to smoke and cigarette craving. Additional analyses were performed by separating participants into HighCPD vs. LowCPD groups via median split. The HighCPD group smoked 22.7±1.1 CPD while the LowCPD group smoked 6.4±0.3 CPD [$F(1,161) = 228.4, p < 0.0001$], and the HighCPD group had a mean FTND score twice that of the LowCPD group. Significant differences emerged between the two groups on multiple items of the NSIQ, but not the MDUQ. The subjective ratings of high and desire for cocaine, and several subjective effects produced by cocaine, were modestly altered by cigarette smoking. Taken together, these data suggest that cigarette smoking may augment the craving and high produced by cocaine.

Keywords

nicotine; smoking; cocaine; drug abuse; addiction; comorbidity

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*Corresponding Author: Alex J. Brewer III, Baylor College of Medicine, Department of Pharmacology, abrewer@bcm.edu.

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1. Introduction

It is well documented that abusers of illicit drugs such as cocaine often use other drugs simultaneously, including alcohol, marijuana, and specific to this report, nicotine (Higgins et al., 1991; Burling and Ziff, 1988; Burling et al., 1991; Miller et al., 1989). In 2011, over 56 million Americans over the age of 12 smoked cigarettes, while 1.4 million Americans over 12 used cocaine (NSDUH, 2011). Individuals who use cocaine are also more likely to smoke cigarettes than people who do not use drugs (Henningfield et al., 1990). In particular, cocaine users are roughly three to four times more likely than their non-drug-abusing counterparts to smoke cigarettes (Budney et al., 1993; Gorelick et al., 1997; Patkar et al., 2002; Kalman et al., 2005; Weinberger and Sofuoglu, 2009). In addition, several researchers have observed that stimulant use can also lead to increased consumption of nicotine/cigarettes (Roll et al., 1997; Sigmon et al., 2003; Wooters et al., 2008).

Several researchers have also investigated the ability of nicotine to substitute for cocaine (and *vice versa*) using animal models of drug discrimination, but with varying results. In two studies with monkeys, nicotine failed to fully substitute for cocaine. In the first, injections of nicotine (0.125–16 mg/kg, intramuscular) produced inconsistent responding for cocaine (0.25 mg/kg, i.v.) in Rhesus monkeys; at the highest dose of nicotine, one monkey responded on the cocaine-appropriate lever in more than 90% of responses, while at this dose, the other monkey only responded on the cocaine-appropriate lever in 40% of responses (de la Garza and Johanson, 1983). In contrast, a later study reported that cocaine (0.01–1 mg/kg, i.v.) had no effect on responding for nicotine (0.1 mg/kg, i.v.) in squirrel monkeys (Takada et al., 1988). In a newer report, more complex results were observed. Nicotine (0.032–0.56 mg/kg, i.v.) mostly failed to substitute for cocaine (0.4 mg/kg, i.m.), but nicotine pretreatment (0.32 mg/kg, i.m.) increased cocaine discrimination in 2 out of 3 monkeys (Mello and Newman, 2011). In another report (Gould et al., 2011), nicotine only partially substituted for cocaine (0.01–0.3 mg/kg, i.v.). The mutual substitution of nicotine and cocaine have also been investigated in Sprague-Dawley rats. In one study, nicotine (0.03–0.56 mg/kg) fully substituted for cocaine, yet cocaine (1–17 mg/kg) failed to fully substitute for nicotine (Desai et al., 1999). In addition, the authors had previously reported, under otherwise identical experimental conditions, that nicotine (0.03–0.56 mg/kg) fully substituted for cocaine, yet cocaine (1–17 mg/kg) failed to fully substitute for nicotine, a phenomenon dubbed “asymmetrical substitution” by the author (Desai et al., 1999).

Studies involving self-administration paradigms have also been conducted in non-human primates and rodents. First, a 9-day regimen of nicotine exposure (0.6 mg/kg, s.c.) facilitated the acquisition of cocaine self-administration (0.25 mg/kg, i.v.) in Sprague-Dawley rats (Horger et al., 1992). Additional data have been reported in Rhesus monkeys. In one study, (Gould et al., 2011) nicotine (0.01–0.1 mg/kg) was not self-administered in monkeys previously trained on cocaine (0.017–0.1 mg/kg/injection). In the other study (Mello and Newman, 2011), nicotine (0.001, 0.0032, and 0.01 mg/kg, i.v.) increased self-administration of the combination of cocaine and nicotine at low doses of cocaine.

Clinical data on the effects of nicotine on cocaine use have also provided inconsistent results. In one of the first studies on this topic, cocaine-dependent smokers self-reported using more cocaine in the past 30 days and more days per week, using more grams per week, and spending more money on cocaine on a weekly basis than cocaine-dependent non-smokers (Roll et al., 1996). More recent reports have investigated the subjective and/or reinforcing effects of nicotine and cocaine. In one report, acute exposure to transdermal nicotine patches (22 mg) enhanced cue-induced craving for cocaine without affecting physiological measures such as skin temperature and conductance (Reid et al., 1998). A subsequent report investigated the subjective and physiological responses of both nicotine

(0.75, 1.5, and 3.0 mg/70 kg, i.v.) and cocaine (10, 20, and 40 mg/70 kg, i.v.) in cocaine-dependent cigarette smokers (Jones et al., 1999). Nicotine and cocaine produced similar subjective responses (e.g. “good effects”, “like drug”, “high”, etc.) although the magnitude of these responses tended to be greater for nicotine than cocaine. Physiological measures such as heart rate, diastolic and systolic blood pressure, and skin temperature were similar for both nicotine and cocaine as well. In another report, transdermal nicotine (14 mg) attenuated subjective responses to cocaine (0.9 mg/kg, intranasal), including “stimulated” and “high” without altering heart rate, skin temperature, or blood pressure (Kouri et al., 2001). On the contrary, chronic nicotine maintenance (21 mg/day for 14–25 days, transdermal) did not alter subjective responses to cocaine (15 and 30 mg/70 kg, i.v.), including “good effects”, “like drug”, and “high” (Sobel et al., 2004). Last, a report investigated the hypothesis that nicotine substitutes for cocaine in cocaine-dependent participants, and that upon successful treatment for cocaine dependence, increases in aspects of smoking would be observed (Patkar et al., 2006). The study revealed no differences in cigarettes smoked per day or FTND scores.

Neurochemically, both nicotine and cocaine alter dopaminergic activity in brain, which may account for their common subjective and physiological effects (Koe, 1976; Ritz et al., 1987; Bergman et al., 1989; Imperato et al., 1986; Mereu et al., 1987; Corrigan, 1991). Specifically, preclinical work in rodents and nonhuman primates has shown that both nicotine and cocaine increase dopaminergic activity in brain (Bergman et al., 1989; Di Chiara and Imperato, 1988) and increase the release of dopamine in the nucleus accumbens (Zernig et al., 1997). It has been suggested that when present simultaneously, there may be an additive dopaminergic effect (Budney et al., 1993). If true, then it is logical that nicotine may augment subjective responses to cocaine.

The purpose of this study was to further investigate the link between concurrent nicotine and cocaine use by attempting to determine whether cigarette smoking influences the subjective response to cocaine in non-treatment seeking volunteers.

2. Experimental Methods

Participants

The current study includes data obtained between February 2010 – May 2011 as part of the “Stimulant Addiction Research Program” at the Baylor College of Medicine (BCM) and Michael E. DeBakey VA Medical Center (MEDVAMC). Participants were recruited from the Houston metropolitan area through newspaper and radio advertisements. All participants completed an initial telephone screen in order to assess basic eligibility. Candidates were then invited to complete an in-person assessment at the Research Commons of the MEDVAMC. During the in-person interview, candidates received an explanation of the study purpose and requirements and were allowed to review, inquire about, and sign the informed consent form. At the time of the assessment, all individuals were participating in a preliminary screening interview for possible enrollment into one of several inpatient, non-treatment seeking phase I clinical trial studies. These studies were sponsored by the National Institute on Drug Abuse, and approved by the Institutional Review Board of BCM and the Research and Development committee of the MEDVAMC. All volunteers provided consent after being fully informed about potential risks of study participation. Participants were compensated with a \$40 gift card for completing the in-person screen.

For the current report, participants met the following inclusion/exclusion criteria: (a) met DSM-IV criteria for cocaine dependence, (b) were 18–65 years of age, and (c) were not seeking treatment for cocaine use. Participants were excluded if they met any of the following exclusion criteria: (a) were dependent on any drugs other than cocaine or nicotine

or (b) met DSM-IV criteria for any neuropsychiatric disorder other than major depressive disorder, mania, or PTSD.

Drug Use

Drug use was assessed with a 14-item, self-report questionnaire with frequency assessed in terms of date of last use, days used in the past 30, years of use, and route of administration. In addition to cocaine, substance use frequency was also assessed for alcohol, methamphetamine, opiates, marijuana, and nicotine. Recent illicit drug use was assessed via qualitative urine toxicology (testing for cocaine metabolites, amphetamine, methamphetamine, marijuana, and opiates). Also, recent nicotine use was confirmed via measurement of breath carbon monoxide and recent alcohol use was assessed via breathalyzer.

Multiple Drug Use Questionnaire (MDUQ)

The MDUQ (see Table 2) is an internally created questionnaire developed to assess the interaction between nicotine and cocaine among individuals who simultaneously use both. When completing the questionnaires, individuals were advised to recall and estimate their subjective experiences to both nicotine and cocaine. The first section investigates the quantity of nicotine used and if and when nicotine is used concurrently with cocaine. The second section assesses how much nicotine affects the high and desire for cocaine that individuals experience while smoking cigarettes (n=161–163 for these questions). Responses may vary on the first section, but the second section uses a scale of –5 (reduces effect) to 0 (no change) to +5 (increases effect) for both questions. A score of –5 indicates the maximum negative effect, whereas a score of +5 indicates the maximum positive effect.

Nicotine-Stimulant Interaction Questionnaire (NSIQ)

The NSIQ (Table 2) is an internally created 11-item questionnaire that assesses the subjective responses to the cocaine use of individuals. When completing the questionnaire, individuals were advised to recall and estimate their subjective experiences to both nicotine and cocaine. Participants were asked to rate their responses to the items on a visual analog scale rated from 0 (corresponding to a rating of “not at all”) to 100 (“extremely”), demarcated in intervals of 10. The first half of the questionnaire asked individuals what smoking a cigarette would do in certain situations when they are using cocaine, and the second half asked about their feelings towards cigarettes while using cocaine.

Fagerstrom Test for Nicotine Dependence (FTND)

The FTND is a validated 6-item questionnaire used to assess the severity of cigarette smoking (Heatherton, et al., 1991). The FTND is scored from 0–10, in ascending order of severity. A majority of the questions are worth 0 or 1 point, with two questions worth up to 3 points for a maximum score of 10.

Screening Interview

Screening interviews were conducted at BCM and MEDVAMC by trained bachelor’s and master’s level research coordinators. After signing the informed consent, the research coordinator collected substance use and mood symptom data through the administration of a series of questionnaires, including the Demographic/Drug Use Information form, the FTND, and the Mini International Neuropsychiatric Interview (MINI), to assess DSM-IV diagnostic criteria.

Data Analyses

Data were collected from the responses of the participants to the NSIQ, MDUQ, and FTND questionnaires, as well as self-reports on cocaine and nicotine use. Univariate descriptive statistics (mean and standard error of the mean) were calculated for the entire sample. Analysis of variance (ANOVA) was used to compare smokers vs. non-smokers. Considering only smokers, the sample was then divided into high and low subgroups using a median split based on the number of cigarettes smoked per day. ANOVA was performed on the responses to the NSIQ and MDUQ for the high vs. low CPD subgroups. For all comparisons, significance was set at $p < 0.05$. All analyses were performed using Statview (version 5.0).

3. Results

Smokers vs. non-smokers

Demographic and drug use data for the entire sample is provided in Table 1. The total sample (N=188 participants) was comprised of 163 smokers (87%) and 25 non-smokers (13%). There were no significant differences in any demographic characteristics, and, there were no significant differences between groups in terms of years or recent use of cocaine (all p 's > 0.05).

Full sample of smokers

The NSIQ and MDUQ were administered to participants who self-reported any nicotine use in the form of cigarette smoking (N=163). These individuals were all active smokers, defined for our purposes in this study, as individuals who smoked at least one cigarette per day, smoked at least two days out of the last thirty, and smoked for a minimum of three years. Most NSIQ scores were within the range of 40–60, with one item, “I smoke fewer cigarettes than usual”, scoring well below this range, and four items, “I crave cigarettes more than usual”, “I smoke more cigarettes than usual”, “I smoke out of habit”, and “I smoke the entire cigarette” scoring 70 or higher (Table 2). On the MDUQ, the response for “Does Nicotine Affect High” was rated at 1.21 ± 0.2 , while the response for “Does Nicotine Affect Desire” was rated at 0.74 ± 0.2 . In addition, 83% of the smokers claimed they smoked cigarettes at the same time as they used cocaine.

Simple linear regression between years of nicotine use and years of cocaine use, within the smoking subgroup, revealed a small positive correlation ($r^2 = 0.119$, $p < 0.0001$) between the two variables. However, after controlling for the age of the participants, the association between years of cocaine use and years of nicotine use was no longer significant (data not shown). To more precisely evaluate a possible relationship between cigarette consumption and cocaine use, CPD were plotted against recent cocaine use (data not shown). The data revealed no correlation between these two variables ($r^2 = 0.001$, $p = 0.733$).

High vs. low – Cigarettes per day

In an effort to more clearly elucidate whether smoking cigarettes alters the effects produced by cocaine, cigarette smokers were separated using a median split based on the daily number of cigarettes smoked. As expected, the HighCPD subgroup smoked a significantly greater amount than the LowCPD subgroup ($p < 0.0001$), and also scored significantly higher on the FTND ($p < 0.0001$) (Table 3). Despite the clear separation between groups, there were no significant differences between these groups for years of nicotine use, years of cocaine use, or recent use of cocaine (all p 's > 0.05).

Significant differences between CPD subgroups (Table 3) emerged on the NSIQ for most items except, “makes my high more intense”, “takes the edge off my high”, “makes me feel

better physically”, “I smoke fewer cigarettes than usual”, and “I smoke more when coming down from the high”. Importantly, there were no significant differences between the subgroups on MDUQ probes of high and craving (all p 's > 0.05). Lastly, within the HighCPD subgroup, 86% reported smoking cigarettes while using cocaine, compared with 83% of the LowCPD subgroup, and these values were statistically similar.

4. Discussion

Full sample of smokers

Overall, the data in the current report show that cigarette smoking produced only modest effects on the high or desire for cocaine among cocaine-dependent participants. In this report, we sought to evaluate responses from a representative sample of individuals who used both cocaine and smoked cigarettes. We successfully screened 188 participants and the majority (85%) also smoked cigarettes. These data are consistent with other reports on the prevalence of cigarette smoking among cocaine users (Budney et al., 1993; Patkar et al., 2002; Patkar et al., 2006). There were no significant differences in years of cocaine use, nor recent cocaine use, between cigarette smokers vs. non-smokers. This finding was the first evidence in this report to suggest no quantifiable impact of cigarette smoking on subjective responses of cocaine use. We found a small positive correlation between the number of years of cigarette smoking and years of cocaine use; given the propensity of cocaine users to also smoke, it followed logically that these individuals would use cocaine for as long or nearly as long as they had used nicotine. However, this relationship was no longer significant after controlling for age, suggesting that age accounted for a large part of this association. In addition, only very weak correlations were found between measures of recent nicotine and recent cocaine use, as well as nicotine or cocaine and accompanying subjective responses to cocaine use, including high and desire. The low r^2 value suggested that the association between variables was weak and likely accounted for by other unknown or unaccounted for factors.

The data provided some interesting results, yet were ambiguous in terms of providing direct support for the hypothesis that nicotine increases the high and desire experienced from cocaine. Most of the responses of the smokers to the items on the NSIQ were within a moderate range of 40–60. Very few extreme scores (i.e. toward 0 or toward 100) occurred, except for the previously mentioned five items that fell outside of the range of 40–60. Given the descriptive anchors of “not at all” and “extremely” corresponding to scores of 0 and 100 respectively (and the lack of a descriptive anchor at 50), the implied response at 50 would appear to be exactly intermediate between the two extremes. Accordingly, the majority of responses, which were centered between 40–60, corresponded to the participants having mostly moderate responses to the questions posed. Notwithstanding, it is important to note that for many human behavioral pharmacology studies, subject-ratings produced by drugs of abuse are of similar magnitude but are quite frequently statistically significant. The lowest item, “Smoke Fewer Cigarettes” provided a clear indication that these individuals do not smoke fewer cigarettes when using cocaine. However, the participants did report that while using cocaine, they smoked more cigarettes than usual, smoked out of habit, smoked the entire cigarette and craved more cigarettes than usual. Based off of the MDUQ data from the total population of smokers, nicotine produced a small increase in the high experienced when using cocaine, as well as a small increase in the desire to use cocaine. The mean score for these two items from the entire sample was nearly equal to 1, indicating that while nicotine did not produce a large effect on these two items, there was a measurable and maybe relevant increase in these two subjective measures. It was interesting that on the NSIQ scale, the participants reported a relatively high craving for cigarettes while using cocaine, yet on the MDUQ scale, the same participants reported that nicotine only modestly increased their desire for cocaine. This conflicting result may be the result of a number of

factors. First, it may have indicated that cocaine may have affected craving for nicotine to a much greater extent than nicotine may have affected craving for cocaine. It could also have reflected a difference in the wording between the two questionnaires. In addition, these instruments were also different in the number of questions posed and their respective scoring. Resolution of the discrepancy could have clarified interpretation of the results.

In additional analysis of data from the NSIQ and MDUQ, there also appeared to be the emergence of a pattern of cocaine use leading to increased craving for cigarettes and subsequent increased consumption of cigarettes. Accordingly, it may be worthwhile to further investigate concurrent cocaine and cigarette use, especially as it pertains to pharmacological interventions. Last, the participants also rated very highly smoking cigarettes while using cocaine out of habit, seeming to indicate a lack of a conscious reason for smoking.

High vs. low – Cigarettes per day

When the entire sample was divided into HighCPD versus LowCPD smokers, there was clearly a difference in the level of nicotine dependence, which led us to expect significant differences between these subgroups in the NSIQ and MDUQ as well. Indeed, significant differences were revealed for several items of the NSIQ, but not the MDUQ. Specifically, these individuals did not report that cigarette smoking increased high nor desire for cocaine, yet the HighCPD subgroup reported increased concentration, feeling better physically, increased craving for cigarettes, smoking more cigarettes, smoking more cigarettes to completion, and having something to do, all to a greater degree than the LowCPD subgroup.

In conclusion, we observed that smoking cigarettes appears to have mildly augmented the high and desire for cocaine among individuals with a history of using both drugs. In addition, smoking cigarettes also appears to have enhanced craving and subsequent consumption of cigarettes, especially among heavy smokers. Future studies will elucidate the specific effects of cigarette smoking on the subjective effects produced by controlled cocaine exposure in the laboratory.

Limitations

There were limitations in the current study worth noting. The data in this report were based on self-reports from the participants, which may be subject to recall bias. In addition to this, the participants likely smoked cigarettes for as long or nearly as long as they had used cocaine, so it is possible that it may have been difficult for them to truly recall their subjective responses to cocaine without also being under the influence of nicotine. There was also a lack of biochemical and physiological data, which could complement the self-report data. Also, a different number and type of questions were asked on the NSIQ and the MDUQ, which may have contributed to the presence and quantity of significant differences between items on the NSIQ, and the absence of significant differences for items on the MDUQ. An additional limitation was that the outcomes could have been bolstered if data about other drug use in these participants were included. Specifically, concurrent use of multiple substances could have provided indirect insight into how nicotine impacts the effects produced by cocaine. It may also have been helpful to have asked the participants exactly how many cigarettes they smoked while using cocaine, as this may have established a dose response similar to that observed with the differences between HighCPD and LowCPD smokers in the NSIQ data.

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Highlights

The majority of cocaine-dependent individuals also smoke cigarettes.

Cocaine-dependent cigarette smokers do not differ in history of cocaine use nor recent cocaine use.

Cigarettes modestly affect the high and desire for cocaine.

Heavier cigarette smokers differ from lighter smokers in certain subjective responses to cocaine.

Heavier cigarette smokers did not differ from lighter smokers in high nor desire for cocaine.

Table 1

Demographics and Drug Use

		Smokers (N=163)	Non-Smokers (N=25)	Significance (p<0.05)
Age		44.9±0.6	45.4±.1.3	--
Years of Education		12.1±0.1	12.2±0.2	--
Gender	Male	76%	84%	--
	Female	24%	16%	--
Race	Caucasian	16%	10%	--
	African American	84%	90%	--
Cocaine use	Years of use	17.7±0.6	18.9±2.0	--
	Recent use (last 30 days)	19.8±0.7	20.1±1.8	--
FTND Score		4.6±0.2	-	--

* all data reflect percentages or mean ± S.E.M.

Table 2

NSIQ and MDUQ

<i>NSIQ (N=163) On a scale of 0–100</i> When USING cocaine, smoking a cigarette would	Mean±S.E.M.
...make my high more intense	46.2±2.9
...increase my concentration	39.7±2.5
...give me something to do	58.6±2.5
...take the edge off my high	50.2±2.8
...make me feel better physically	41.2±2.7
When USING cocaine,	
...I crave cigarettes ore than usual	78.8±2.3
...I smoke more cigarettes than usual	81.0±2.3
...I smoke out of habit	73.6±2.2
...I smoke the entire cigarette	77.2±2.4
...I smoke fewer cigarettes than usual	24.8±2.8
...I smoke more when coming down from the high	64.7±2.8
<i>MDUQ</i> <i>On a scale from –5 to 0 to +5</i>	
Does nicotine affect the HIGH that you experience from cocaine? (N=162)	1.3±0.2
Does nicotine affect your DESIRE for cocaine? (N=162)	0.8±0.2
Do you use nicotine at the same time as cocaine? (N=161)	83%

* all data reflect percentages or mean ± S.E.M.

Table 3

Demographics and Drug Use of High vs. Low Smokers

		HIGH Cigs/day (N=76)	LOW Cigs/day (N=87)	Significance (<i>p</i><0.05)
Age		44.9±0.9	45.0±0.7	--
Years of Education		12.2±0.2	11.9±0.1	--
Gender	Male	72%	79%	--
	Female	28%	21%	--
Race	Caucasian	21%	11%	--
	African American	79%	89%	--
Cocaine use	Years of use	18.9±0.9	16.7±0.8	--
	Recent use (last 30 days)	19.6±1.0	19.9±0.9	--
CPD		22.7±1.1	6.4±0.3	<0.0001
FTND Score		6.4±0.2	3.1±0.2	<0.0001

* all data reflect percentages or mean ± S.E.M.

Table 4

<i>NSIQ</i> On a scale of 0 – 100 When USING cocaine, smoking a cigarette would	HIGH Cigs/day (N=76)	LOW Cigs/day (N=87)	<i>P</i> value (if < 0.05)
...make my high more intense	50.2±4.3	42.8±3.8	--
...increase my concentration	47.1±3.6	33.2±3.4	.0059
...give me something to do	66.7±3.3	51.5±3.5	.0019
...take the edge off my high	52.5±4.0	48.3±3.8	--
...makes me feel better physically	49.2±4.0	34.1±3.7	.0059
When USING cocaine,			
...I crave cigarettes ore than usual	86.2±2.4	72.3±3.6	.0023
...I smoke more cigarettes than usual	88.2±2.4	74.7±3.6	.0028
...I smoke out of habit	78.9±3.1	69.0±3.2	.0261
...I smoke the entire cigarette	85.9±2.4	69.7±3.7	.0005
...I smoke fewer cigarettes than usual	23.9±4.1	25.5±3.7	--
...I smoke more when coming down from the high	68.6±4.2	61.4±3.7	--
FTND score (0 – 10)	6.4±0.2	3.1±0.2	<.0001
<i>MDUQ</i> On a scale from –5 to 0 to +5	HIGH Cigs/day	LOW Cigs/day	<i>P</i>-value (if < 0.05)
Does nicotine affect the HIGH that you experience from cocaine?	1.4±0.3	1.1±0.3	--
Does nicotine affect your DESIRE for cocaine?	1.0±0.3	0.6±0.2	--
Do you use nicotine at the same time as cocaine?	86%	78%	--

* all data reflect percentages or mean ± S.E.M.