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## Ethnic and Gender differences in Strategies Used by Adolescents when Attempting to Quit or Reduce Smoking

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### Abstract

Few adolescent smoking cessation programs have been able to match the success rate found in adult programs. The current study identified smoking cessation strategies used by adolescents and whether strategies differed as a function of ethnic, gender, or individual smoking-level.

Participants were 136 high school students who made an attempt to quit or reduce their smoking. Logistic regressions revealed that individuals making an actual quit attempt and African American adolescents used cessation strategies presumed to be more effective. Adolescents are more likely to use informal cessation methods and may need to be provided with more information on effective quit strategies.

### Keywords

Smoking Cessation Methods; Adolescents; Ethnic Differences; Gender Differences; Prevention

### INTRODUCTION

About half of high school students have smoked in their lifetime and 20% are current smokers (Centers for Disease Control and Prevention [CDC], 2008). About 70% of adolescent smokers try to quit, with more than half making multiple quit attempts in a year (Bancej, O’Loughlin, Platt, Paradis, & Gervais, 2007). However, most of these quit attempts are unsuccessful (Robinson et al., 2006). The reasons for the high rate of failure to quit among adolescents are not clear. It may be that the strategies adolescents turn to when trying to quit are not helpful.

To address this issue, researchers have asked adolescent smokers what strategies they would use if they wanted to quit. Most adolescents reported that they would quit on their own (85%) or seek advice from friends (32%; Leatherdale & McDonald, 2005). Less than 7% would seek help from a teacher, guidance counselor, or school nurse. Only 9% of the

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adolescents indicated that they would use group meetings, telephone hotlines, or internet sites (Leatherdale & McDonald, 2005).

Other investigators have assessed the strategies *actually used* when adolescent smokers try to quit smoking. The majority (78%) of high school students with a history of smoking report quitting on their own (Myers, MacPherson, Jones, & Aarons, 2007). In another study of middle and high school students, 59% of former smokers reported quitting “cold turkey” (Riedel, Robinson, Klesges, & McLain-Allen, 2002). Similarly, 51% of young adult daily smokers and 60% of non-daily smokers indicated that they tried quitting without assistance (Solberg, Boyle, McCarty, Asche, & Thoele, 2007). Thus, both adolescents and young adults seem unlikely to use formal smoking cessation programs with empirically supported treatment components.

One strategy that adolescents use to quit smoking is slowly reducing the number of cigarettes smoked. Several studies found that 78% to 88% of young smokers reported cutting down in the past (CDC, 2006; Myers et al., 2007; Riedel et al., 2002). Although this is a popular approach among adolescents, the effectiveness of reducing tobacco intake is controversial due to insufficient evidence that this practice is successful (Stead & Lancaster, 2007).

Nicotine replacement therapy (NRT) is an effective method for quitting among adults (Stead, Perera, Bullen, Mant, & Lancaster, 2008), but has not been found to be as efficacious with adolescents (Klesges, Johnson, Somes, Zbikowski, & Robinson, 2003). NRT is not widely available to adolescents and is not often prescribed by physicians (Price, Jordan, & Dake, 2007), yet 5%–19% of teenagers report past or current use of NRT products (CDC, 2006; Klesges et al., 2003; Myers et al., 2007; Riedel et al., 2002; Solberg et al., 2007). Teens tend to use NRT for reasons other than smoking cessation, and when they do use NRT it is often used inappropriately and ineffectively (Hyland, Bradford, & Gitchell, 2005). Studies of medications for smoking cessation with adolescents have tended to yield disappointing results (Grimshaw & Stanton, 2006).

Seeking social support is another strategy that might help adolescents to quit smoking. It has been estimated that 48% to 56% of adolescent smokers have tried quitting with a friend (CDC, 2006; Myers et al., 2007), 44% have sought advice from a friend (Riedel et al., 2002), and 61% have told a friend about trying to quit (Solberg et al., 2007). In contrast, only 16% of adolescents report seeking advice from a parent, counselor, or doctor during a past quit attempt (Myers et al., 2007). Adolescents tend not to use support groups, online programs, or telephone hotlines (CDC, 2006; Myers et al., 2007; Solberg et al., 2007).

A number of methodological issues have made interpretation of research in this area difficult. For example, most studies have relied on recalls of strategies used during previous quit attempts, making the data vulnerable to errors of memory. Often studies do not specify when the quit attempt was made or whether the strategy endorsed was used in the most recent quit attempt. Additionally, no one measure of smoking cessation strategies exist, making comparisons across studies difficult. With the exception of the CDC (2006) and Myers et al (2007) research has used limited lists of strategies for participants to endorse.

In addition to these considerations, research in this area has been limited primarily to Caucasians. Previous studies have demonstrated that African Americans begin smoking later than Caucasians and smoke fewer cigarettes per day (Kandel, Kiros, Schaffran, & Hu, 2004). However, African Americans demonstrate higher levels of nicotine dependence (Royce, Hmoitz, Corbett, Hartwell, & Orlandi, 1993). Although African Americans are more motivated to quit smoking (U.S. Department of Health and Human Services [USDHHS], 1998), they are less likely to succeed compared to Caucasians (Giovino et al., 1994). It may be that African Americans have more difficulty quitting because they use less effective cessation strategies than do Caucasians.

Research suggests that women have more difficulty quitting and maintaining cessation than men, although findings are mixed (Westmaas & Langsam, 2005). Studies on cessation strategies used by women vs. men are virtually non-existent. Among adolescents, boys have been found to be more likely to use NRT gum and the patch compared to girls (Klesges et al., 2003). Additional research is needed to investigate gender differences in other potential strategies.

The present study was designed to provide a more methodologically rigorous investigation of the strategies used by adolescents in a recent attempt to quit or reduce smoking. In contrast to previous research, this study inquired about a broader array of quitting strategies. In addition, the potential utility of gender, ethnicity, and nicotine dependence were explored as predictors of strategy utilization.

## **METHOD**

### **Participants**

Participants were 195 high school adolescents who had been caught with tobacco at school. Of the 195 adolescents, 70% ( $n = 136$ ) made an attempt to quit or reduce their smoking during the study and were included in the present analysis. Of these 136 adolescents, 46.3% made a quit attempt and the remainder attempted to reduce their smoking. Participants averaged 16.43 years old ( $SD = 1.18$ ) and 73.5% were male. Regarding ethnicity, 42.7% of the adolescents were African American (83.9% male) and 57.3% Caucasian (66.7% male). Approximately 59.3% of the adolescents smoked on a daily basis, averaging 3.90 cigarettes per day ( $SD = 4.43$ ).

### **Measures**

#### **Baseline demographic items**

Gender and ethnicity were assessed via self-report.

#### **Smoking status**

To assess smoking status, adolescents chose from the following options: "I'm still smoking," "I'm thinking about quitting," "I'm trying to cut down," and "I quit sometime within the past week." Only those who reported an attempt to reduce or quit smoking, regardless of their success, were included in the current study. In addition, participants were asked how many cigarettes they typically smoked in a day.

## Nicotine dependence

The Fagerström Tolerance Questionnaire (mFTQ) modified for use with adolescent smokers was used (Prokhorov, Pallonen, Fava, Ding, & Niaura, 1996). This version consists of seven questions assessing factors associated with nicotine dependence. Scores ranged from 0 to 8, with higher scores indicating more nicotine dependence. The mean level of dependence in our sample was 2.74 ( $SD = 1.49$ ).

## Strategy utilization

To develop a comprehensive list of strategies, we surveyed the adolescent literature for studies of various cessation methods. In addition, we identified methods of cessation reported to us by adolescents taking part in a separate cessation trial. After eliminating overlapping methods, we created a list of 26 total approaches to smoking cessation. This list was piloted with a small group of teen smokers before use in this study.

Using the final list of strategies, adolescents who reported an attempt to quit or cut down within the past week were administered a questionnaire to identify which of the 26 strategies they had used. Specifically, they were told: “Think about the most recent time you quit/cut down smoking. Did you do any of the following things to help you quit/cut down? Did you....?” Participants could answer “yes” or “no” to each of the listed strategies.

## Procedure

High school students who violated school policy by having tobacco on school property were eligible for referral to the study by school administrators. Participants were offered reduced school sanctions (usually suspension) for their enrollment in the project. Adolescents were *not* required to quit or reduce their smoking to participate in the study. The study was approved by the University of Memphis Institutional Review Board, and written parental consent and student assent were obtained.

At the onset of the study, research assistants administered questionnaires to participants assessing self-reported demographic variables, tobacco history, and strategies endorsed during a current quit or reduction attempt. Prior research has demonstrated the reliability and validity of self-report data on smoking behaviors (Wong, Shields, Leatherdale, Malaisson & Hammond, 2012). Our previous research indicates that about 65% of adolescents are likely to make a quit attempt after being caught with tobacco (Riedel et al., 2002). To capture data on strategy use close to the beginning of a cessation attempt, participants were assessed weekly for 4 weeks. Notably, participants could potentially attempt to quit or reduce their smoking multiple times during the study. However, only strategies used during their *first* attempt to quit or cut down smoking were examined for the current report. Thus, data on strategies used were obtained within a week of each student’s quit attempt.

## RESULTS

### Descriptive Statistics on Strategy Utilization

On average, participants who attempted to quit or reduce smoking used 7.85 strategies ( $SD = 4.01$ ). Trying to cut down slowly was the most popular strategy (83.1%;  $n = 113$ ), followed

by using oral substitutes such as gum or toothpicks (64%,  $n = 87$ ) and talking to a friend (61.8%;  $n = 84$ ). The least popular strategies were talking with a psychologist (4.4%,  $n = 6$ ), using a medical prescription (2.2%,  $n = 3$ ), and calling a help line, an approach that only 1% of the sample endorsed ( $n = 2$ ). Figure 1 illustrates the percentage of adolescents who endorsed each of the 26 strategies. Due to low endorsement, six strategies were removed from analyses.

### Exploratory Factor Analysis of Cessation Strategy Items

To determine if cessation strategies clustered into identifiable factors, we conducted an exploratory factor analysis (EFA) using the *MPlus* statistical program. Unweighted least squares extraction and an oblique rotation method (promax) were used, because we anticipated that any factors that emerged would be correlated. A scree plot suggested a three-factor solution. Initially, criteria were set to a loading of  $>.40$  on the primary factor and  $<.30$  on the other factors, but this plan eliminated all but two strategies. Using a loading of  $>.35$  on the primary factor and  $<.30$  on the other factors produced the same result.

The analyses for six strategies resulted in quasi-separation due to a failure of the maximum likelihood equation iteration to converge on a solution (Field, 2005). Consequently, these six rarely used strategies (calling a helpline, using a prescription, cleaning cigarette smell from car, avoiding family members who smoke, talking to a psychologist, and searching the internet) were removed. We then re-ran the EFA models using the criteria outlined above, but the results were unchanged. The three factor model didn't yield a consequential solution after considering simple structure. With no meaningful subscales emerging from the EFA, all analyses were conducted at the item level and/or on the total sum of strategy endorsement.

### Gender and Ethnic Differences in Strategy Utilization

A series of logistic regression analyses were conducted, using gender, ethnicity, and their interaction to predict use of each strategy (see Table 2). Overall, there were two significant main effect of gender on strategy utilization with males being 2.56 times more likely to increase their exercise ( $p = .02$ ) than females and females being 2.22 times more likely to seek support compared to males ( $p = .04$ ). There were 6 main effects of ethnicity, such that African American adolescents were 4.65 times more likely to avoid smoking friends ( $p = .001$ ), 2.17 times more likely to avoid places where they typically smoke ( $p = .03$ ), 3.24 times more likely to set a quit date ( $p = .003$ ), and 2.27 times more likely to increase their exercise ( $p = .05$ ) than Caucasian adolescents. Caucasian adolescents were 2.09 times more likely to use substitutes (chewing gum, sunflower seeds;  $p = .05$ ) and 2.22 times more likely to drink less caffeine ( $p = .05$ ) than African American adolescents. Only one interaction was statistically significant, indicating that Caucasian males were 6.47 times more likely to use other tobacco products as a means of smoking cessation than were African American males ( $p = .01$ ).

### Cessation Attempt Predicting Strategy Utilization

Teens may use different strategies based on their attempt to quit vs. reduce smoking. Therefore, a series of logistic regressions were run, using cessation attempt (quitting vs. reducing cigarettes) to predict use of each strategy (see Table 3). Results indicated that

adolescents who made a quit attempt were 4.49 times more likely to remove cigarettes from their home, 2.27 times more likely to remove cigarettes from their car, 3.64 times more likely to remove smoking materials (e.g., lighters, ashtrays) from their homes and 5.10 times more likely to talk to a guidance counselor about their quit attempt compared to adolescents who wanted to reduce tobacco use ( $p < .001$ ,  $p = .031$ ,  $p = .002$ ,  $p = .015$  respectively). Teens who made a quit attempt were also 4.68 times more likely to avoid smoking friends than those who tried to reduce smoking ( $p = .001$ ). Not surprisingly, adolescents who made an actual quit attempt were 89% less likely to use the strategy of decreasing the number of cigarettes they smoked compared to those adolescents who attempted to reduce their smoking ( $p = .001$ ).

### Nicotine Dependence Predicting Strategy Utilization

Logistic regression was employed to investigate nicotine dependence as a predictor of strategy use. Surprisingly, nicotine dependence predicted only one strategy: smoking reduction. Thus, for each unit increase in dependence, adolescents were 1.62 times more likely to try reducing smoking as a strategy ( $p = .01$ ). The predictive utility of nicotine dependence was also explored for the total number of strategies used. After controlling for gender and ethnicity, nicotine dependence did not significantly predict the number of strategies used.

## DISCUSSION

The purposes of this study were (a) to determine what strategies adolescents use when making an attempt to reduce or quit smoking and (b) to identify potential predictors of specific strategy utilization. Our results indicated that adolescents prefer informal cessation strategies, such as oral substitutes, talking with friends, and increasing their exercise. Although there is limited evidence demonstrating efficacy of smoking cessation interventions in adolescents, some of the more commonly endorsed informal cessation strategies in this study (seeking social support, exercising, and avoiding triggers) are commonly found in the more promising smoking cessation interventions that incorporate psychosocial elements (i.e., dealing with stigma, friends, social support), cognitive-behavioral strategies (relaxation, self-management, problem-solving) and motivational enhancement techniques (Sussman & Sun, 2009).

Despite their effectiveness among adults (West, McNeil, & Raw, 2000), formal cessation programs appear to be unpopular with teens. Teens are unlikely to talk with a physician or psychologist or to consider using medication. Their reluctance to talk with physicians is particularly discouraging, given recent research indicating that adolescents who *do* talk with physicians about tobacco use are more likely to quit (Hum, Robinson, Jackson, & Ali, 2011). Further, at least for adults, involvement in a formal smoking cessation program is more likely to be successful than quitting on one's own (West et al., 2000).

The potential reasons these strategies are unpopular among adolescents are not clear. For example, are medical or behavioral treatments viewed as unacceptable among teens or are there barriers preventing their use? The formal cessation strategies would likely require the most effort and access to additional resources, whereas the more popular strategies (e.g.,

talking to a friend, cutting down) are easier to perform and require minimal resources. Similarly, the unpopular strategies are more likely to require the assistance of other people. Notably, teens often hide their smoking from parents and/or professionals. Adolescents may be uncomfortable asking a parent to make an appointment with a health professional and to provide financial support for treatment. Other potential barriers include poor awareness of existing programs, treatment cost, low motivation, negative affect, lack of available resources, stigma associated with smoking, and peer pressure (Guirguis et al., 2010).

We were also interested in whether strategies differed by teens' attempt to quit or reduce their smoking. We found that adolescents who tried to reduce their smoking were less likely to seek help from a guidance counselor, remove cigarettes and smoking materials from their homes and cars, and to avoid friends who smoke. Instead, such teens simply reduced the number of cigarettes smoked. These findings suggest that those who focus on reducing their smoking engage in a less comprehensive planning process. Public health campaigns may need to inform adolescents of the more promising cessation methods, such as removing smoking materials from the home.

To our knowledge, our study is the first to explore ethnic differences in cessation strategies among teenagers. We found that African American adolescents use somewhat different strategies than Caucasians. Adolescent smoking cessation interventions that demonstrate the most promise include coping with social influence, cognitive-behavioral strategies and motivation enhancement techniques (Sussman & Sun, 2009) and our finding that African American teens were more likely to avoid smoking friends and places where they used to smoke, as well as increasing their exercises and setting a quit date suggest that African American teens are planning ahead and taking appropriate measures to enhance their cessation or reduction attempt. Our findings are consistent with previous research indicating that African American smokers are more motivated to quit and more likely to make cessation attempts than Caucasians, even though they are less likely to *successfully* quit (Giovino et al., 1994). It is also possible that African American adolescents have made more previously unsuccessful attempts to quit and therefore have already learned which strategies are more effective. Future research should investigate the impact of previous knowledge on the utilization of various cessation methods, as well as sociocultural and environmental factors.

Adolescent boys and girls also differ on use of cessation strategies, with females being more likely to seek out social support during their quit or reduction attempt and males being more likely to increase exercise. Interestingly, there was one significant interaction, demonstrating Caucasian boys were likely than African American boys to switch from smoking cigarettes to other tobacco products (cigars, chewing tobacco). Perhaps Caucasian boys are less knowledgeable about potentially beneficial cessation strategies, less informed about the dangers of alternative tobacco products, and/or less motivated to make a quit attempt.

### **Limitations and future directions**

Despite its strengths, this study has a number of limitations. First, a larger sample would yield more power to detect differences in strategies used. In addition, having more participants would allow researchers to gain more data about the six strategies assessed in



this study that were rarely endorsed. Due to the exploratory nature of this study, as well as the lack of emergent subscales from the EFA, analyses were conducted at the item level potentially increasing the risk for type 1 error. Similarly the majority of our sample was male making differences between males and females difficult to detect. Additionally, a wider range of ethnicities should be explored. Furthermore, data were collected via self-report and did not include corroborating measures. Finally, the current study identifies the strategies used by adolescents, but not the *efficacy* of these strategies. Further research is needed to determine which strategies are most effective in helping teens to stop smoking.

## Conclusions

These results also have implications for intervention and prevention programs, in that adolescents may need to be provided with more information regarding effective quit strategies, especially Caucasian males. Due to some success of cessation programs targeting social influences, CBT techniques, and enhancing motivation, interventionist could incorporate similar strategies that adolescents appear to be already using (i.e., social support, exercising, avoiding triggers). In addition, these findings indicate that more research needs to be conducted concerning the difficulty minorities face with smoking cessation. The current findings suggest that although African Americans struggle to successfully quit smoking, they utilize strategies commonly employed in cessation programs.

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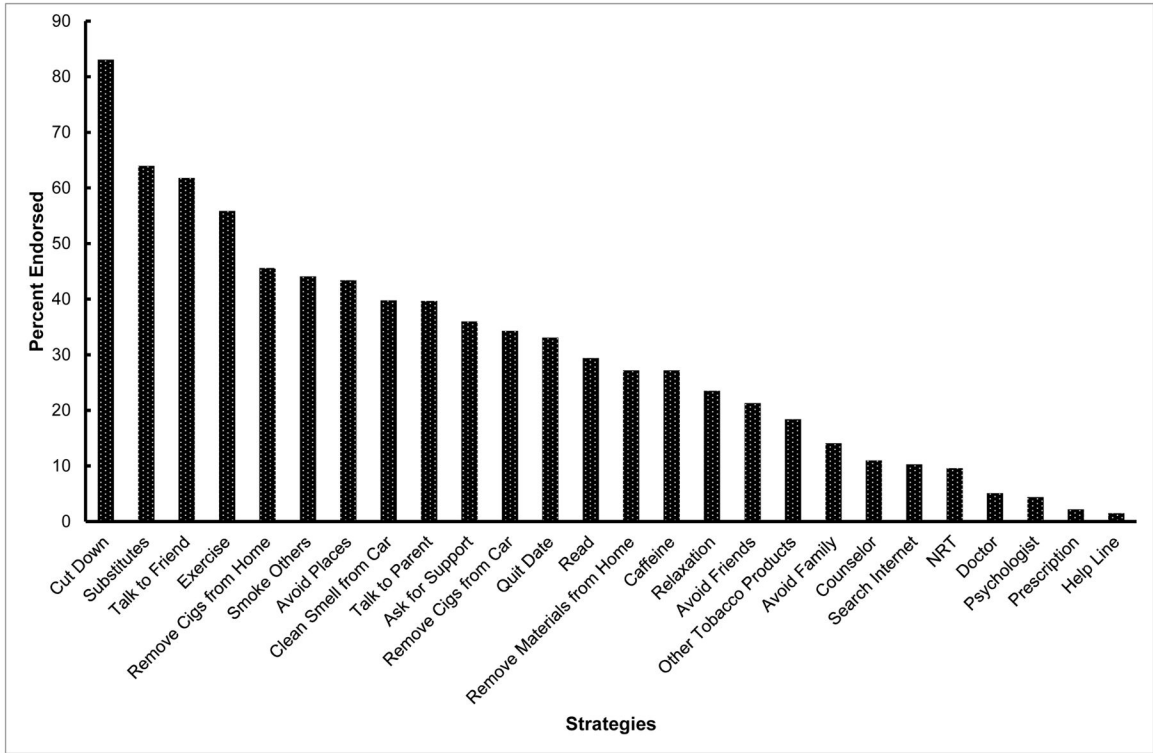
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**Figure 1.** Frequencies of strategies used by adolescents attempting to quit or reduce smoking.

**Table 1**

Average Number of Cigarettes Smoked per Day by Gender, Ethnicity and Cessation Plan

	N (%)	M (SD)
Total Sample	136	3.88 (4.40)
Gender		
Male	100 (73.5)	4.01 (4.76)
Female	36 (26.5)	3.51 (3.24)
Race/Ethnicity ***		
White or Caucasian	75 (57.3)	5.48 (5.04)
Black or African-American	56 (42.7)	1.79 (2.25)
Cessation Attempt ***		
Reduced/Cut Down Smoking	73 (53.7)	5.17 (4.27)
Quit Smoking	63 (46.3)	2.39 (4.09)

\*  
p < .05,\*\*  
p < .01,\*\*\*  
p < .001

**Table 2**

Ethnicity, Gender, and their Interaction as Predictors of Strategy Utilization

Strategy (DV)	OR	95% CI		p
		Lower	Upper	
Removed Cigarettes from Home				
Gender	1.07	0.50	2.29	0.87
Ethnicity	0.62	0.31	1.25	0.18
Removed Smoking Materials from Home				
Gender	1.43	0.58	3.50	0.44
Ethnicity	0.72	0.33	1.54	0.39
Removed Cigarettes from Car				
Gender	2.10	0.87	5.10	0.10
Ethnicity	1.87	0.87	4.02	0.11
Avoided Friends who Smoke				
Gender	2.67	0.86	8.29	0.09
Ethnicity	0.22	1.86	11.61	.001**
Avoided Places Where you Usually Smoke				
Gender	0.60	0.28	1.28	0.19
Ethnicity	.46	0.23	0.93	0.03*
Talked to Friends about Quitting				
Gender	0.53	0.23	1.22	0.14
Ethnicity	0.90	0.44	1.83	0.77
Talked to a Parent/Guardian about Quitting				
Gender	0.66	0.30	1.42	0.29
Ethnicity	0.71	0.35	1.44	0.34
Talked to a School Guidance Counselor about Quitting				
Gender	1.00	0.29	3.33	0.99
Ethnicity	0.52	0.17	1.60	0.26
Talked to a Medical Doctor				
Gender	0.46	0.10	2.16	0.32
Ethnicity	1.93	0.36	10.33	0.44

Strategy (DV)	OR	95% CI		p
		Lower	Upper	
Read about Quitting				
Gender	1.35	0.57	3.20	0.50
Ethnicity	1.11	0.52	2.36	0.80
Set a Quit Date				
Gender	1.17	0.52	2.66	0.71
Ethnicity	0.31	1.49	6.85	.003**
Started Using other Tobacco Products				
Gender	0.24	0.03	1.69	0.15
Ethnicity	0.15	0.01	1.86	0.14
Gender x Ethnicity	43.10	2.46	755.93	.01**

Strategy (DV)	B	OR	95% CI		p
			Lower	Upper	
Tried to Cut Down Slowly					
Gender	0.48	1.62	0.62	4.22	0.32
Ethnicity	-0.89	0.41	0.15	1.12	0.08
Stopped Buying Cigarettes and Only Smoked Others' Cigarettes					
Gender	0.45	1.57	0.72	3.44	0.26
Ethnicity	0.12	1.13	0.56	2.27	0.74
Used Substitutes					
Gender	0.33	1.39	0.64	3.03	0.41
Ethnicity	0.74	2.09	1.01	4.30	0.05*
Increased Exercise					
Gender	0.94	2.56	1.17	5.61	0.02*
Ethnicity	-0.83	0.44	0.21	0.90	0.03*
Used Relaxation Techniques					
Gender	0.10	1.11	0.45	2.75	0.83
Ethnicity	0.18	1.20	0.51	2.81	0.68
Drank Less Caffeine than Before					
Gender	0.36	1.43	0.58	3.50	0.44

Strategy (DV)	B	OR	95% CI		P
			Lower	Upper	
Ethnicity	0.80	2.22	1.01	4.88	0.05*
Used NRT					
Gender	0.20	1.22	0.32	4.72	0.77
Ethnicity	0.57	1.77	0.52	6.08	0.36
Asked Someone to Support You					
Gender	-0.80	0.45	0.21	0.98	0.04*
Ethnicity	-0.39	0.68	0.33	1.39	0.29

Note. OR = odds ratio; CI = confidence interval. Male were coded as 1 and females were coded as 0. Caucasians were coded as 1 and African Americans were coded as 0. P values were not corrected for multiple comparisons

\* Indicates tests found to be significant at the  $p$  .05 level.

\*\* Indicates tests found to be significant at the  $p$  .01 level.

\*\*\* Indicates tests found to be significant at the  $p$  .001 level.



**Table 3**

Logistic Regressions Comparing Teens Planning to Quit to Teens Planning to Cut Down Smoking on their Strategy Utilization

Strategy (DV)	OR	95% CI		p
		Lower	Upper	
Removed Cigarettes from Home	4.49	2.15	9.38	.000 ***
Removed Smoking Materials from Home	3.64	1.61	8.25	.002 **
Removed Cigarettes from Car	2.27	1.08	4.78	.031 *
Avoided Friends who Smoke	4.68	1.83	11.95	.001 ***
Avoided Places Where Smoke	1.38	0.69	2.76	.362
Talked to Friends about Quitting	1.15	0.57	2.32	.707
Talked to a Parent about Quitting	1.14	0.57	2.29	.714
Talked to Guidance Counselor	5.10	1.37	19.03	.015 *
Talked to a Medical Doctor	1.47	0.32	6.84	.624
Read about Quitting	1.20	0.57	2.54	.634
Set a Quit Date	1.05	0.50	2.17	.905
Used Other Tobacco Products	0.41	0.16	1.07	.067
Tried to Cut Down Slowly	0.11	2.61	33.53	.001 ***
Stopped Buying & Only Smoked Others' Cigarettes	0.89	0.45	1.78	.742
Used Substitutes	0.73	0.36	1.49	.383
Increased Exercise	1.53	0.76	3.07	.230
Used Relaxation Techniques	0.57	0.25	1.28	.170
Drank Less Caffeine than Before	1.40	0.65	3.05	.393
Used NRT	1.29	0.41	4.07	.662
Asked Someone to Support You	0.81	0.39	1.65	.559

Note. OR = odds ratio; CI = confidence interval. A quit attempt was coded as 1 and reducing smoking was coded as 0. Strategies were coded 1 when they were used and 0 when they were not. P values were not corrected for multiple comparisons.

\* Indicates tests significant at the  $p$  .05 level.

\*\* Indicates tests significant at the  $p$  .01 level.

\*\*\* Indicates tests significant at the  $p$  .001 level.