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Gender, Smoking Status, and Risk Behavior Attitudes Explain Adolescents' Patterns of Nicotine Replacement Therapy Use

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Abstract

Treatment studies provide minimal support for Nicotine Replacement Therapy (NRT) with youth; however, survey studies suggest that adolescents use NRT, and may engage in inappropriate use. The current study sought to examine patterns of NRT use and risk factors for use to further aid smoking cessation efforts including prevention of potential misuse. In-school surveys assessing socio-demographic and behavioral factors associated with NRT use, gum or patch, were completed by 4078, predominantly African-American, high school students. Approximately 5% of students reported former or current use of NRT products: 42% gum, 29% patch, and 29% both gum and patch. Among smokers, 5.4% reported use of both NRT gum and patch, with exclusive use of gum twice as likely as exclusive use of the patch. Those with high risk-taking attitudes were more likely than low risk-takers (3% vs. 1%) to report use of both products, with exclusive gum use more prevalent than patch use. A cumulative logit model revealed males, risktakers, and/or smokers were at greatest odds for NRT use. Among this adolescent sample, NRT gum was used more often than the patch. Adolescent males, risktakers, and/or smokers appear more likely to use NRT (gum and/or patch) compared to their counterparts, despite limited empirical support for effective use of these products as cessation aids among adolescents. Smoking cessation and prevention programs may emphasize appropriate NRT use, specifically within these populations.

Keywords

Nicotine Replacement Therapy; NRT; adolescents; risk behavior attitudes

1. Introduction

The use of nicotine replacement therapy (NRT) as part of effective smoking cessation interventions in adults is well established (Stead, Perera, Bullen, Mant, & Lancaster, 2008;

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Wu, Wilson, Dimoulas, & Mills, 2006). While young smokers report using NRT to aid in cessation (Klesges, Johnson, Somes, Zbikowski, & Robinson, 2003; Moolchan & Schroeder, 2004; Stanton, 1995), recent evidence (Garrison, Christakis, Ebel, Wiehe, & Rivara, 2003; Grimshaw & Stanton, 2006; Sussman, Sun, & Dent, 2006) provides little support for its larger effectiveness. In fact, the updated Clinical Practice Guideline recommends that NRT not be offered as a component of pediatric smoking cessation (Fiore et al., 2008).

Few studies have examined NRT use in youth but inappropriate use has been indicated from a large cross-sectional school survey of NRT use in adolescents (Klesges et al., 2003). Among high school students, 20.2% of young daily smokers, 4.4% of experimental, and 14.5% of former smokers reported having ever used NRT. Only 25% of NRT users who were current smokers reported using NRT to try to quit smoking and 18% of NRT users reported being never smokers. Recent analysis of National Health and Nutrition Examination Survey data examined NRT use among never smokers and identified 0.05% of adolescents who had used NRT within the prior 5 days (Gerlach, Rohay, Gitchell, & Shiffman, 2008). Finally, Hyland and colleagues (2005) found reports of NRT abuse among adolescents although percentages were lower than other over-the-counter abusable substances. It may be that part of the underlying problem with the potential effectiveness of NRT in youth is that the products are not used as recommended.

Non-modifiable demographic characteristics such as gender and race/ethnicity have been found to be associated with NRT use in adolescents (Klesges et al., 2003; Moolchan & Schroeder, 2004) but potentially modifiable risk factors have not been widely studied. Behavioral factors such as risk taking tendencies (Coogan et al., 1998; Epstein, Botvin, & Spoth, 2003; Sargent & DiFranza, 2003) and deviant behavior (Forrester, Biglan, Severson, & Smolkowski, 2007) have predicted smoking in adolescents. Similar variables are also associated with abuse of other substances and engagement in health behavior risks (USDHHS, 1994) and thus may be useful for explaining NRT use.

Further understanding of patterns of use (i.e., gum versus patch use) among adolescent smokers as well as nonsmokers could support future efforts at effective cessation. Because NRT is readily available as an over-the-counter medication and is easily accessible to youth (Klesges et al., 2003; Johnson, Klesges, Somes, Coday, & DeBon, 2004), the risk of inappropriate and ineffective use exists. Therefore, an understanding of predictors of “who” uses NRT may identify subgroups that may benefit from preventive strategies.

The current study sought to extend our previous findings (Klesges et al., 2003) to describe the associations among socio-demographic and behavioral factors with patterns of NRT use in adolescents. Specifically, prevalence of “type” of NRT use (i.e., gum or patch) was examined according to race/ethnicity, gender, and smoking status. In addition, risk behavior attitudes were investigated as an additional potential explanatory factor in use of NRT.

2. Methods

2.1. Design

Survey data were collected in collaboration with the Memphis Health Project, a serial cross-sectional survey to investigate the predictors and incidence of smoking in students attending Memphis City Schools. Use of NRT and related questions were included in the fifth year of the study, which included a cross-section and a cohort of mostly 11th graders. Those students who were homebound due to illness or with cognitive disabilities were excluded.

Among eligible and consenting students from 40 different schools, there were a total of 7932 11th grade students or previous cohort members eligible to participate in the survey. Of these,

9% chose not to participate in the survey, less than 1% were withdrawn by parental refusal or lack of verifiable consent, and almost 25% were lost due to problems in survey administration (e.g., absence, special education, or withdrawal from school), leaving a total of 5107 students completing the survey. Of this completion group, 13% received an abbreviated telephone survey not addressing NRT questions. This resulted in a total of 4403 surveys available for the current analyses.

School coordinators received standardized training including an overview and manual of research procedures, survey materials, and coordinator duties. School coordinators were responsible for training classroom teachers in research procedures and arranging survey administration at their respective schools. Survey administration occurred during 60-minute class periods. Teachers informed students that the study assessed issues regarding smoking and health. The voluntary and confidential nature of the study was described to students and parents were given an opportunity to refuse their child's participation. Interested students completed a packet (i.e., survey, demographic form, and consent form). Even though surveys were administered to primarily high school students, the reading level in the original Memphis Health Project study was targeted for 5th grade reading level and the core items remained the same throughout the study. Additionally, assistance was provided for those that requested clarification. Students were identified by a unique study number to protect anonymity. Additional efforts included providing participants with unmarked envelopes in which to place and seal completed surveys. The teachers then placed these envelopes in a security packet marked "CONFIDENTIAL." The school coordinator then collected the packets and held them for pick-up by research staff. The procedures for this study were approved by both the University of Tennessee Health Sciences Center and University of Memphis Institutional Review Boards.

2.2. Measures

Demographics—Sociodemographic data, including age and gender, were self-reported. Race and ethnicity categories included self-endorsement of Asian, African American/Black, Hispanic, White, Other (blank provided for written response).

Type of NRT Use—Use of NRT products were asked separately for gum and patches (i.e., "Never tried," "Tried at least once," "Use several times a week," or "Use every day"). These data contributed to the development of a four-category variable: "Never gum or patch," "Ever only gum," "Ever only patch," or "Ever gum and patch." The "Ever only gum" and "Ever only patch" categories included endorsements of "Tried at least once," "Use several times a week," or "Use every day" for the respective NRT type (i.e., gum or patch). The "Ever gum and patch" category was defined by ascertaining the intersection of students who claimed to have ever used gum and those endorsing ever using patches.

Smoking Status—Students were asked to endorse the category that best described their current status. Smoking categories were defined as follows: "Never smoker" ("I have never smoked a cigarette, not even a few puffs"), "Former smoker" ("I used to smoke cigarettes regularly, but I quit"), "Experimental smoker" ("I have smoked a cigarette or a few cigarettes just to try but I have not smoked in the past month"; "I smoke, but less than one cigarette per month") and "Smoker" ("I smoke, but less than one cigarette per week"; "I smoke from 1 to 6 cigarettes per week"; "I smoke at least one cigarette per day"). These categories are based on research done by Flay and Mayhew,⁵⁶ on nicotine addiction and smoking stages of addiction in adolescents.

Risk Behavior Attitudes—Attitudes towards risk behaviors were also asked in a series of three questions: "I do very dangerous things for fun ____." "It is ____ worth getting into trouble

if I have fun,” and “I enjoy doing things people say that I shouldn’t do____.” Responses to these questions were defined as: “Very often,” “Some of the time,” “Not very often,” and “Hardly ever.” Numeric values were assigned to these responses to obtain an average score; the scores were then used to dichotomize the sample into low risk-takers (80% of the sample) and high risk-takers (20% of the sample) approximating an average of very often to some of the time responses.

2.3 Statistical Analyses

To identify the prevalence of type of NRT products used, simple descriptive frequencies for NRT gum and NRT patch use by race, sex, and smoking status were calculated. Differences in NRT use among these categories were considered by using chi-square tests. Univariate analysis explored potential explanatory variables including gender, smoking status, and risk-taking attitudes, ease of access, source, and household smokers. NRT use was coded as never, gum only, patch only, and both gum and patch.

A cumulative logit model was used to analyze independent associations among the demographic and behavioral factors with an ordinal coding of NRT use. Pearson’s chi-square and the deviance chi-square were used to assess goodness of fit and the assumption of proportionality of the odds ratios. Main effect models including gender, smoking status, and risk taking attitude as well as potential interactions were considered.

Approximately 80% of the sample was African American. This distribution created thin cells (<1% population) when forming frequency tables for racial/ethnic categories for use of NRT, patch or gum use. Combining race categories to decrease thin cells would have required merging dissimilar prevalence percentages across racial categories. This was of no benefit for statistical analysis, and thus race was not further analyzed due to thin cells and an inability to combine racial categories. It is of importance to note that over 92% of all racial categories reported to be never users of NRT patch and at least 88% reported to be a never user of NRT gum. Analysis of gender differences showed that males were significantly more likely than females to report ever use of NRT patch (5.3% vs. 1.5%) ($\chi^2_1=48.1, P<.001$) and gum (5.7% vs. 2.4%) ($\chi^2_1=31.0, P<.001$).

3. Results

Of the 7932 youth eligible for study participation, 5107 surveys were collected for analysis. Of these, 4403 surveys contained completed NRT information. From this reduced sample, 325 surveys had missing values for gum use (n=255), patch use (n=151), or smoking status (n=224) and were eliminated from analysis. These surveys would not allow for complete analysis of the key dependent variables, and thus were removed before analysis began. Thus a total of 4078 surveys were available and used for these analyses.

Demographic differences between the individuals removed for incomplete survey data and those who remained were considered before proceeding with primary analysis. This analysis showed differences between the two groups in gender, smoking status, and race. Males (9.8%) were removed more frequently than females (5.2%) ($\chi^2_1=33.5, P<.001$). Never smokers (3.1%) were more frequently removed than former smokers (2.4%), experimental smokers (1.5%) and current smokers (1.1%) ($\chi^2_3=11.9, P<.008$). The proportion of incomplete surveys was highest for Hispanics (14.3%) and lowest for whites (2.8%) ($\chi^2_4=26.3, P<.001$).

3.1. Characteristics of the Sample

Behavioral and demographic variables of race, gender, and smoking status were analyzed from the available 4078 surveys with complete NRT and smoking data. The majority of respondents

reported their race to be African American (79.5%), followed by White (15.7%). The high distribution of African American participants created thin cells (<1% population) when forming frequency tables for racial/ethnic categories for use of NRT, gum or patch use. Combining race categories to decrease thin cells would have required merging dissimilar prevalence percentages across racial categories. This was of no benefit for statistical analysis, and thus race was not further analyzed due to thin cells and an inability to combine racial categories. Over half, 58%, of respondents were female. Of all students, 57.0% reported to be never smokers followed by 29.8% experimental smokers, 5.4% former smokers, and 7.8% regular smokers. (See Table 1).

3.2. Prevalence of Using NRT Gum or Patch

The pattern of type of NRT use showed that 94.7% of the survey population reported never trying the patch or gum. Among those having ever tried or used NRT, 41.6% reported exclusive use of gum, 29.2% reported using only patch, and 29.2% reported using both types of products. (See Table 1). Non significant associations ($p > .05$) were found for ease of access, sources of NRT, and number of household smokers.

3.3. Type of NRT Use and Smoking Status

Smoking status was significantly associated with any use of NRT patch ($\chi^2_3 = 107.7$, $P < .001$) and gum ($\chi^2_3 = 173.2$, $P < .001$) with the highest associations found among smokers and former smokers. The type of NRT product used also varied by smoking status. Specifically, 5.4% of smokers reported previous use of both gum and patch, with exclusive use of gum (8.6%) about twice as likely as exclusive use of the NRT patch (4.1%). No significant associations for type of NRT product were seen for experimental or never smokers. (See Table 1).

3.4. Type of NRT Use and Risk Behavior Attitudes

As shown in Table 2, overall significant differences between risk taking groups were seen in type of NRT used ($\chi^2_6 = 68.3$, $P < .001$). Of those considered Risktakers, 3.4% report use of both NRT gum and patch, as compared to 1.1% of those coded as low Risktakers. Similar differences were seen for both gum (4.7% vs. 1.6%) and patch (2.9% vs. 1.2%) use. Among Risktakers, exclusive use of NRT gum (4.7%) was almost two times as likely as patch use (2.9%).

3.5. Independent Associations with Type of NRT Use

In the development of an explanatory multivariable model for NRT use, categories of level of NRT use were coded as: Never gum or patch, Tried gum and/or patch, and Used gum and/or patch. Initial models included two equations that separately considered patch use and then gum use, with coded levels of “never”, “tried”, and “used.” Preliminary models showed that the independent associations for levels of gum and patch were significant with similar point estimates for all variables. Given this pattern and the improved model fit obtained when gum and patch categories were combined, the final models are presented as three levels of use.

The cumulative logit model was used to analyze the association between ordinal levels of NRT use and a set of demographic and risk behavior variables of gender, smoking status, and risk behavior attitudes with NRT use. The overall logistic model was significantly explanatory for NRT (gum or patch) use. Gender, a dichotomized variable of attitude toward risk-taking, a four-category smoking status variable and an interaction between smoking status and gender were determined to provide the best fitting explanatory model of NRT use (see Table 3). Those individuals who were “Male,” “Risktakers,” or “Smokers” were at the highest odds. The proportional odds assumption gave a χ^2_8 value of 11.8 with a P -value of .16 indicating that the assumption made for the cumulative logit model is acceptable. The goodness of fit, assessed by the deviance statistic, was $p = 0.23$.

Overall, youths classified as Risktakers were 1.69 (95% CI: 1.26–2.30) times as likely to have used NRT compared to those not considered Risktakers. In addition, a significant interaction between smoking categories and gender was included in the model. It appeared that the increase in NRT use for males compared to females was greatest for nonsmokers and experimental smokers and least for former smokers. However, in all categories of smoking, males were at higher odds of NRT use than females. In the category of smoking status, odds increased in order of “Never,” “Experimental,” “Former,” and “Smoker.” (See Table 4).

4. Discussion

This study showed that approximately 5% of a sample of 4078 high school students had used the nicotine gum and/or patch. Among the adolescents who reported ever trying or using NRT, exclusive gum use was most commonly reportedly. Similar low percentages of use were reported for the patch or use of both products. Males were twice as likely as females to report having ever used NRT gum and almost four times as likely to having used the patch. Several factors could contribute to a higher prevalence for gum use such as decreased chance of stigmatization or ease of distribution among peers. Additionally, greater use of gum by males is consistent with higher smoking prevalence among males (CDC, 2006) but in contrast to NRT use in adults showing that females are more likely than males to seek assistance in smoking cessation, including use of NRT (Zhu, Melcer, Sun, Rosbrook, & Pierce, 2000).

In the current study, those who reported being more likely to take risks were also more likely to have used the gum and/or patch as compared to their counterparts. This is similar to research on tobacco use as well as other substances showing sensation seeking or risk taking to be related to use (Coogan et al., 1998; Epstein et al., 2003; Sargent & DiFranza, 2003; USDHHS, 1994). Additionally, current and former (versus experimental and never) smokers were most likely to have used the gum and patch, with gum use over twice that of patch use among current smokers. However, a small number of never smokers reported use of both the gum and patch. This is not surprising given findings from a previous study indicating that regardless of smoking status the majority of these participants used NRT for reasons other than trying to quit smoking (Klesges et al., 2003).

The current study showed males, smokers, and/or risk takers to be most likely to use NRT. For males, NRT risk was greater among nonsmokers and experimental smokers and least for former smokers. According to smoking status, risk for NRT use increased in order of never, experimental, former, and current smoker. Whereas these gender and smoking status patterns were evident in a previous study (Klesges et al., 2003), the current study identified these as independent factors along with risk behavior attitudes as explanatory variables for those most likely to use NRT. Additional studies are needed to examine frequency or quantity of use of specific types of NRT as well as reasons for use. Together these findings may contribute to the development of future prevention/cessation programs as well as add to research supporting practice guidelines.

One of the most notable limitations in the current study is the lack of validity and reliability in unverified self-reports from youth, especially when dealing with high-risk behaviors. Therefore, adolescents may be less likely to report use of cigarettes, NRT, or other risky behaviors, thus, potentially resulting in conservative estimates and bias towards the null. Future studies may consider additional physiological measures (e.g., Gerlach et al., 2008) to increase confidence in findings. Second, because the data set is several years old it may not reflect current patterns of use, however, it remains a unique source of information on NRT use among adolescents. Third, the race/ethnic distribution of respondents made it difficult to draw conclusions about race/ethnicity and type of NRT use. When considering race in prevalence of use, the only key information that can be noted is that over 88% of all racial categories

reported to be never users of NRT gum and 92% reported to be never users of the patch. Accordingly, the uneven ethnic distribution limits the applicability of this information to other populations. Ethnic differences in NRT use have been noted in a previous study⁴ and should be considered in future studies. Additionally, factors related to non-response were analyzed but bias related to small percentages of underrepresented males and Hispanic students were difficult to evaluate. Fourth, the current study focused on only two types of NRT (i.e., gum and patch) and allowed for examination of only limited patterns of use (i.e., never, ever gum, every patch, ever both). Future studies should examine additional forms of NRT, specifically nicotine inhaler, lozenge, and nasal spray as well oral medications including bupropion SR, varenicline, clonidine, and nortriptyline, as these have been approved for non-contraindicated populations (Fiore et al., 2008).

Additionally, further work is needed to define and examine amount or degree of use, prior versus current use, and simultaneous use of various medications. Initial findings (Klesges et al., 2003) provide evidence of simultaneous use of NRT products and cigarettes but more research is also needed to further detail these issues.

We believe that the current study contributes unique findings to the limited literature on adolescent use of NRT. The findings provide additional insight into socio-demographic and behavioral factors associated with type of NRT use as well as identifying risk behavior attitudes as a potential associative factor for use of NRT. This understanding is important as knowledge of patterns as well as risk factors for adolescent use of NRT may help direct prevention/cessation program development.

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References

- Centers for Disease Control and Prevention. Youth Tobacco Surveillance---United States, 2001–2002. *Morbidity and Mortality Weekly Report* 2006;55(SS03):1–56. [PubMed: 16410759]
- Fiore MC, Jaen CR, Baker TB, Bailey WC, Bennett G, Benowitz NL, et al. A clinical practice guideline for treating tobacco use and dependence: 2008 Update. A U.S. public health service report. *American Journal of Preventive Medicine* 2008;35:158–176. [PubMed: 18617085]
- Coogan PF, Adams M, Geller AC, Brooks D, Miller DR, Lew RA, et al. Factors associated with smoking among children and adolescents in Connecticut. *American Journal of Preventive Medicine* 1998;15:17–24. [PubMed: 9651634]
- Epstein JA, Botvin GJ, Spoth R. Predicting smoking among rural adolescents: Social and cognitive processes. *Nicotine and Tobacco Research* 2003;5:485–491. [PubMed: 12959786]
- Forrester K, Biglan A, Severson HH, Smolkowski K. Predictors of smoking onset over two years. *Nicotine and Tobacco Research* 2007;9:1259–1267. [PubMed: 18058344]
- Garrison MM, Christakis DA, Ebel BE, Wiehe SE, Rivara FP. Smoking cessation interventions for adolescents: a systematic review. *American Journal of Preventive Medicine* 2003;25:363–367. [PubMed: 14580641]
- Gerlach KK, Rohay JM, Gitchell JG, Shiffman S. Use of nicotine replacement therapy among never smokers in the 1999–2006 National Health and Nutrition Examination Surveys. *Drug and Alcohol Dependence* 2008;98:154–158. [PubMed: 18572330]
- Grimshaw GM, Stanton A. Tobacco cessation interventions for young people (review). *Cochrane Database of Systematic Reviews* 2006;4:CD003289.
- Hyland A, Bradford D, Gitchell J. Drug counselor report of adolescents abuse of nicotine replacement therapy. *Journal of Addictive Diseases* 2005;24:105–113. [PubMed: 16368660]

- Johnson KC, Klesges LM, Somes GW, Coday MC, DeBon M. Access of over-the-counter nicotine replacement therapy products to minors. *Archives of Pediatric Adolescent Medicine* 2004;158:212–216.
- Klesges LM, Johnson KC, Somes G, Zbikowski S, Robinson L. Use of nicotine replacement therapy in adolescent smokers and nonsmokers. *Archives of Pediatric Adolescent Medicine* 2003;157:517–522.
- Moolchan ET, Schroeder JR. Quit attempts among African American teenage smokers seeking treatment: gender differences. *American Journal of Preventive Medicine* 2004;39:1180–1186.
- Sargent JD, DiFranza JR. Tobacco control for clinicians who treat adolescents. *CA: A Cancer Journal for Clinicians* 2003;53:102–123. [PubMed: 12691267]
- Stanton W. DSM-III-R tobacco dependence and quitting during late adolescence. *Addictive Behaviors* 1995;20:595–603. [PubMed: 8712057]
- Stead LF, Perera R, Bullen C, Mant D, Lancaster T. Nicotine replacement therapy for smoking cessation (Review). *Cochrane Database of Systematic Reviews* 2008;3:CD000146.
- Sussman S, Sun P, Dent CW. A meta-analysis of teen cigarette smoking cessation. *Health Psychology* 2006;25:549–557. [PubMed: 17014271]
- United States Department of Health and Human Services. Preventing tobacco use among young people: A report of the surgeon general. Atlanta, GA: US Department of Health and Human Services., Public Health Service, Centers for Disease Control and Prevention, National Center for Chronic Disease Prevention and Health Promotion, Office on Smoking and Health; 1994.
- Wu P, Wilson K, Dimoulas P, Mills EJ. Effectiveness of smoking cessation therapies: a systematic review and meta-analysis. *BMC Public Health* 2006;6:300. [PubMed: 17156479]
- Zhu SH, Melcer T, Sun J, Rosbrook B, Pierce JP. Smoking cessation with and without assistance: A population-based analysis. *American Journal of Preventive Medicine* 2000;18:305311.

Table 1

Prevalence of type of NRT Use, Gum or Patch, by Demographic Characteristics and Smoking Status

	No. of Subjects*	Never gum or patch	Ever only gum	Ever only patch	Both gum and patch
Total Sample	4078 (100%)	94.7%	2.2%	1.5%	1.5%
Sex					
Male	1695 (42%)	91.7%	3.1%	2.6%	2.6%
Female	2344 (58%)	97%	1.6%	0.7%	0.7%
Race					
Asian	71 (1.7%)	88.7%	5.6%	2.8%	2.8%
African American	3123 (79.5)	96.2%	1.2%	1.3%	1.3%
Hispanic	30 (.7%)	90%	3.3%	3.3%	3.3%
White	655 (15.7%)	90.7%	5.9%	1.7%	1.7%
Other	108 (2.4%)	85.2%	7.4%	3.7%	3.7%
Smoking Status					
Never	2239 (57.0%)	98.3%	0.8%	0.5%	0.4%
Former	242 (5.4%)	85.5%	6.6%	4.6%	3.3%
Experimental	1227 (29.8%)	93.9%	2.0%	2.1%	2.0%
Smoker	370 (7.8%)	81.9%	8.6%	4.1%	5.4%

* Due to missing values, some categories may not total 4078

* Values expressed as n and percent

Table 2

Type of NRT Use and Risk Taking Attitudes

	No. of Subjects*	Never gum or patch	Ever only gum	Ever only patch	Both gum and patch
Risk Taking Attitudes					
High Risk-Taker	827	89.0%	4.7%	2.9%	3.4%
Low Risk Taker	3251	96.1%	1.6%	1.2%	1.1%

* Due to missing values, some categories do not total 4078

Table 3

Cumulative Logit Regression Analyses on Dependent Variable Level of NRT Use

	Degrees of Freedom	Wald Chi Square	<i>p</i> -value
Risk Taking Attitudes	1	11.83	0.0006*
Gender	1	13.33	0.0003*
Smoking Status	3	72.67	< .0001*
Interaction of Smoking Status and Gender	1	10.94	0.01*

* Indicates significant *p*-value of <.05

Table 4

Odds Ratios of NRT for Variables of Gender, Smoking Status, and Risk Taking Attitudes

Smoking Status	Low-Risk Taker		High-Risk Taker	
	Female	Male	Female	Male
Never	1 *	3.73 *	1.70 *	6.33 *
Experimental	3.39 *	12.80 *	5.75 *	21.72 *
Former	16.52 *	17.87 *	28.04 *	30.33 *
Smoker	16.62 *	26.38	28.21 *	44.77

* Indicates significant *p-value* of <.05