

5-2023

DIFFERENCE IN SMOKING PATTERNS AND QUITTING STATUS BETWEEN PREMIUM AND NON-PREMIUM CIGAR USERS AFTER TWO YEARS OF FOLLOW UP IN US ADULTS: FINDINGS FROM THE POPULATION ASSESSMENT OF TOBACCO AND HEALTH (PATH) STUDY, 2016-2019

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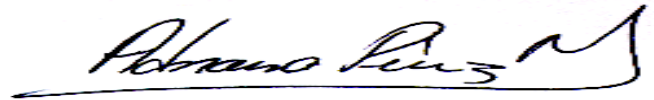
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(PATH) STUDY, 2016-2019

by

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Sarah Valencia, BS Applied Mathematics BS Biochemistry, MS Biostatistics
2023

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Presented to the Faculty of The University of Texas

School of Public Health

in Partial Fulfillment

of the Requirements

for the Degree of

MASTER OF SCIENCE

THE UNIVERSITY OF TEXAS
SCHOOL OF PUBLIC HEALTH
Houston, Texas
May 2023

DIFFERENCE IN SMOKING PATTERNS AND QUITTING STATUS BETWEEN
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Previous studies have described the demographics, purchasing behaviors, trends in frequencies of cigar use, and quitting status among cigar poly users, however, there has not been a study that evaluates differences in demographic characteristics and quitting status for premium and non-premium U.S. adult cigar users. This study used secondary data analyses of the Population Assessment of Tobacco and Health (PATH) Study public-use files dataset for adult traditional cigar users in wave 4 (2016-2018) and wave 5 (2018-2019). Traditional cigars were classified as premium or non-premium at wave 4 (2016-2018) using the brand and price per stick of cigar that was reported by adult traditional cigar users in the PATH study. The study explored differences in demographic characteristics between premium and non-premium adult cigar users to determine if there was a difference in the proportions of sex, age, race, ethnicity, education, past 30-day cigarette use, and past 30-day traditional cigar use at wave 4 (2016-2018) of the PATH study. Two weighted logistic regression

models assessed the association of premium and non-premium cigar use in the past year on quitting status of traditional cigar use two years later. The first model controlled for age, sex, race, ethnicity, and highest level of education. The second model controlled for past 30-day cigarette use, and past 30-day traditional cigar use for age, sex, race, ethnicity, and highest level of education. To evaluate the association of premium and non-premium cigar use in the past year on quitting status of traditional cigar use two years later, the crude, adjusted odds ratios, and 95% confidence interval were reported. Most premium cigar users were non-Hispanic (88.22%) white (83.69%) males (89.40%) between the ages 25-35 years old (30.37%) with the highest education of bachelor's degree or above (44.17%). The results indicated there were 32.65% adults who reported using premium cigars in 2016-2018 (Wave 4), and 67.35% reported using non-premium cigars. Of those who reported using premium cigars in 2016-2018 (Wave 4), 33.69% quit using cigars in 2018-2019 (Wave 5); of those who reported using non-premium cigars in 2016-2018 (Wave 4), 75.58% quit using cigars in 2018-2019 (Wave 5). After adjusting for covariates, premium cigar users (at Wave 4, 2016-2018) had 84% lower odds of quitting (at Wave 5, 2018-2019) in comparison to non-premium cigar users (aOR=0.16, 95% CI=0.11-0.24). Premium and non-premium cigar users need interventions that motivate them to quit. Future studies should investigate quit intentions within these user groups to assess their readiness for change.

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BACKGROUND

Literature Review

Traditional Cigar's and description of use

There is limited information about sociodemographic description and the quitting status of traditional cigar users when separating by premium and non-premium cigar use. The working definition for premium cigars have all the following characteristics: they are handmade, composed of at least 50% natural long-leaf filler tobacco, wrapped in whole leaf tobacco, weighs at least 6 lbs per 1,000 units, has no filters or tips, and no flavor other than tobacco (Engineering The National Academies of Sciences, and Medicine et al., 2022).

Toxicants and carcinogens in premium cigar products are nearly identical to those when using cigarettes. Cigarettes can cause heart disease, cancers, respiratory diseases, and other adverse health effects (Engineering The National Academies of Sciences, and Medicine et al., 2022).

A previous cross-sectional analysis evaluated wave 1 (2013-2014) from the Population Assessment of Tobacco and Health (PATH) study to determine purchasing behaviors in U.S. cigar adult users (Corey et al., 2018). In this study, premium cigars were classified when cigars were priced \$2 or greater per stick of cigar and by the brand information reported by the participant (Corey et al., 2018). Premium cigars were classified as cigars that consist of more expensive tobacco components that are wrapped with a whole tobacco leaf wrapper and binder which may be assembled by hand (Corey et al., 2018). All other cigars that do not fit this category were considered non-premium cigars in this study. The results of the sociodemographic of that study varied by cigar type (premium, non-

premium, cigarillo, and filtered cigars) highlighting the importance of cigar type studied and differentiating results by cigar types. Daily users and average number of cigars per day were similar for nonpremium cigars and cigarillos users ($p = 0.11$; $p = 0.33$, respectively) (Corey et al., 2018). In 2013-2014, US adult premium cigar users tended to have a higher socioeconomic status, lower smoking frequency, and different reasons for use in comparison to nonpremium cigar users (Corey et al., 2018).

To determine the trends in past 30-day cigar use in the U.S. a 1998 to 2019 longitudinal study among 21,940 U.S. adults reported linear regression models to determine the association of sociodemographic characteristics with past 30-day cigar use (Azagba and Shan). This longitudinal study did not classify between premium and non-premium cigar users. Majority of past 30-day cigar users in this study were male (89.5%) and non-Hispanic whites (78.5%) (Azagba & Shan, 2022). The results indicated an increasing trend among female adult past 30-day cigar users ($\beta=0.23$, $p\text{-value}<0.0001$) as well as a decrease in past 30-day male cigar users ($\beta=-0.03$, $p\text{-value}=0.03$) (Azagba & Shan, 2022).

Quitting patterns

In a longitudinal cohort study, researchers evaluated past 30-day U.S. adult tobacco users by exploring the relationship between nicotine dependence and quitting outcomes over time using the PATH wave 1 (2013-2014) and wave 2 (2014-2015) dataset (Persoskie et al., 2019). The study focused on adult filtered cigar, cigarillos and traditional cigar users and evaluated the number of cigars used in the past 30-days, package quantity, price, and the cigar user's dual use with cigarettes. The study did not distinguish traditional cigars as premium or non-premium cigars. Before adjustment, cigar adult users who reported bought

larger packages in 2013-2014, were 33% more likely to continue using cigars one year later (OR 1.33; 95%CI: 0.78, 2.27); however, after adjusting for race, ethnicity, age, education, income, and sex the result did not remain statistically significant (Persoskie et al., 2019).

In another 2013-2018 PATH study, not specifically focusing on cigar users, researchers evaluated nicotine dependence, mental health, and attempts to quit tobacco product use (Snell et al., 2021). Past 12-months adult tobacco product users (i.e. electronic cigarettes, cigars, cigarillos, pipe tobacco, hookah, smokeless products, snus, and dissolvable tobacco) were selected at wave 1 (2013-2014) and those who participated in waves 2-4 (2014-2018) were further evaluated to determine nicotine dependence and the likelihood of achieving quitting of tobacco use of any tobacco product by wave 4 (2017-2018) and the log of past 30-day total consumption of cigarettes between waves 2-4 (2014-2018). This study modeled the associations between any mental illness (AMI), nicotine dependence and their relationship with likelihood of quitting tobacco products (Snell et al., 2021). The findings revealed that the participants with certain classes of AMI symptoms and those reporting a doctor's visit in the previous year were associated with increased likelihood of reporting a quit attempt of any tobacco product (5.0 Percentage Points) and achieving cessation of tobacco products (2.1 Percentage Points) (Snell et al., 2021).

A previous cross-sectional analysis evaluated the first collection (2018-2019) of the Tobacco Use Supplement to the Current Population Survey (TUS-CPS) of US adults to determine the prevalence of successful cessation of current cigarette use (Walton et al., 2020). Current cigarette use was defined in the study as adults who used at least 100 cigarettes during their lifetime and currently used cigarettes every day, and cessation was

defined as adults who quit cigarette use within the past 12-months (Walton et al., 2020). The prevalence of successful cessation and their 95% confidence intervals were examined overall by sex, race/ethnicity, age, education, occupation, annual household income, metropolitan status, US region, disability/limitation status, current e-cigarette use, current use of other noncigarette tobacco products, and past-year menthol cigarette smoking. In 2018, 7.1% of adult cigarette users reported successful cessation (Walton et al., 2020). The results showed there were no significant differences in the prevalence of successful cessation observed by sex (p-value = 0.47) or race/ethnicity (p-value = 0.17) (Walton et al., 2020). The prevalence of successfully achieving cessation decreased as age increased, decreasing from 13.7% among adults aged 18-24 years to 5.0% among adults aged 45 to 64 years (Walton et al., 2020). Successful cessation was higher among adult cigarette users who were advised to quit by a medical doctor (4.9%) and among adults that reported having smoke-free home rules (9.8%) (Walton et al., 2020). Although these results were exclusive to cigarette users, the results can be used to compare traditional cigar users and can help develop cessation methods for traditional cigar users.

Public Health Significance

There has not been a study that evaluates differences in demographic characteristics and quitting status for premium and non-premium U.S. adult cigar users. The results from the proposed study provide information about demographic characteristics among traditional cigar users by premium and non-premium use and the effect of premium and non-premium cigar use on the incidence to quitting cigar use two years later.

Hypothesis, Research Question, Specific Aims or Objectives

Specific Aim: To describe the sociodemographic characteristics between premium and non-premium cigar users in 2016-2018 and to determine if there is a difference in the percentage of sex, age, race, ethnicity, education, past 30-day cigarette use, and past 30-day traditional cigar use between premium and non-premium cigar users.

Hypothesis: There will be a difference in sex, age, race, ethnicity, education, past 30-day cigarette use, and past 30-day traditional cigar use between adults who were premium or non-premium cigar users.

Specific Aim 2: To determine if the proportion of adults quitting traditional cigar product use after two years is different among adults who use premium cigars vs those that use non-premium cigars (wave 5 of the PATH study).

Hypothesis: Adults who are premium cigar users will have a lower proportion of quitting cigar use after two years in comparison to adults that are non-premium cigar users.

METHODS

Study Design

The PATH study public-use files wave 4 (2016-2018) and wave 5 (2018-2019) of adults were used in this study. The variables of age, sex, race, ethnicity, education, past 30-day cigarette use, and past 30-day cigar use at wave 4 were evaluated to determine if there was a difference in demographics between premium and non-premium cigar users. Quitting traditional cigar usage was determined by adults who reported having quit using traditional cigars or reported not using cigars in the past year after the two years follow up at wave 5.

Wave 4 (2016-2018) and wave 5 (2018-2019) data was linked to analyze if wave 4 adult participants quit by wave 5 or not.

Study Subjects

The study subjects for the project included adults of age 18 and older that participated in both wave 4 (2016-2018) and wave 5 (2018-2019) of the PATH study. The Tobacco 21 or T21 legislation passed on December 20, 2019 during the collection of wave 5 which raised the federal minimum age for sale of tobacco products from 18 to 21 years (FDA, 2021). Although it is illegal as of December 20, 2019, for those under 21 years of age to buy tobacco products there is still data collected for those of the age 18 and above. Since the study is a matter of public health concern these subjects were included regardless of the Tobacco 21 legislation. Prior to data analysis the proposed study underwent an IRB review to ensure the study adheres to the Federal Policy for the Protection of Human subjects and FDA Good Clinical Practice regulations in the conduct of human subject's research and clinical investigations. The UTHealth Houston IRB number for the study was HSC-SPH-22-1029.

Exposure

The brand of traditional cigars usually/last smoked of adults was used in data analyses to classify traditional cigars as premium and non-premium. Adult traditional cigar users were asked "What brand of traditional cigars [do/did] you [usually/last] smoke?". The following table was created using a previous study and was applied when determining the classification of Premium and Non-Premium cigar brands (Corey et al.).

Classification	Brand name reported
Premium cigar brands	5 Star, 5 Vegas, Acid, Alec Bradley, Arturo Fuente, Ashton, Ben-Bay, Bolivar, Brickhouse, Buccanero, CAO, Casablanca, Chubb, Churchill, Cohiba, CubaLibre, Cuban, Davidoff, Don Tomas, Drew Estates, Durango, El Pita, Elverso, Excalibur, Flor de Oliva, Gurkha, H. Uppmanns, Hoya de Monterrey, Indio, Joya de Nicaragua, Kristoff, La Corona, La Gloria Cubana, Los Blancos, Makers Mark, Man of War, Marsh Wheeling, Macanudo, Montecristo, Nub, Oliva, Optimo, Padron, Perdomo, Partagas, Professor Sila, Punch, Robert Burns Blackwatch, Rocky Patel, Romeo y Julieta, San Cristo, Tatuaje, Torano, Victor Sinclair, Zeno
Non-premium cigar brands	Al Capone, Antonio y Cleopatra, Backwoods, Black and Mild, Blackstone, BLK, Djarum, Dutch Masters, El Producto, Entourage, Game, Garcia y Vega, Hav-A-Tampa, King Edward, Miami Suites, Middletons, Munnimaker, Muriels, Parodi, Phillies, Spliterillo, Supre Sweets, Supreme Blend Peach Cigars, Supreme Menthol, Swisher Sweets, Tampa Nugget, Tampa Sweet, White Owl

Additionally, when the brand was unavailable the price of traditional cigars was used to classify traditional cigars as premium and non-premium. The price per stick of premium cigar was determined as \$2 or greater per cigar, this amount was determined as it was seen as the classification of premium cigars in previous studies (Corey et al.). “How much did you pay for the single traditional cigar? /How much did you pay for the single traditional cigar that you last smoked?”. The respondents were asked to respond by inputting the amount in U.S. dollars.

Outcomes

Completely quitting traditional cigars use was used in data analyses. The question asked in the questionnaire was “have you completely quit smoking Traditional Cigars?” or “In the past 12 months, have you smoked a traditional cigar, even one or two puffs?”, where respondents were given the option to answer yes, no, don’t know, refused.

Covariates/Exposure

Age at the time of interview in wave 4 (2016-2018) was a covariate in the study with categories of response: 18 to 24 years old, 25 to 34 years old, 35 to 44 years old, 45 to 54 years old, 55 to 64 years old, and 65 or more years old. Sex at wave 4 (2016-2018) was used as a covariate where adult respondents were allowed to answer male or female. The race with categories of response: white alone, black alone, and other (Asian, Alaska Native, Other Pacific Islander) and Hispanic origin reported at wave 4 (2016-2018) were classified as a covariate as well in the study. The education level at wave 4 (2016-2018) with categories of response: less than high school, General Education Development test (GED), high school graduate, some college (no degree) or associate degree, bachelor’s degree or advanced degree

was included as a covariate. Finally, past 30-day cigarette use and past 30-day cigar use were classified as covariates.

Data Collection

Data was collected during the PATH study by the United States Department of Health and Human Services, National Institutes of Health, National Institute on Drug Abuse and Center for Tobacco Products (USDHHS et al., 2020).

Data Analyses

The pseudo-strata and pseudo-PSUs variables were used to reflect the variance structure along with VARSTAT and VARPSU. There were a total of 92 strata and 156 PSUs in the design. When applying the Balanced Repeated Replication (BRR) method to the PATH's study pseudo-strata the initial household weight yields 100 initial replicate weights (USDHHS et al., 2020). The variable names for the replicate weights used in this study were R04_A_C04WGT1-R04_A_C04WGT100 and R04_A_S01WGT1-R04_A_S01WGT100. The weighted proportions for age, sex, race, ethnicity, education, past 30-day cigarette use, past 30-day traditional cigar use were evaluated from the wave 4 (2016-2018) dataset. The weighted proportions of quitting cigar use at wave 5 (2018-2019) between premium and non-premium cigars were estimated. Weighted chi-squared tests were performed for age, sex, race, ethnicity, education, past 30-day cigarette use, and past 30-day traditional cigar use to evaluate differences between premium cigar users and non-premium cigar users in these characteristics.

Two weighted logistic regression models were performed to evaluate the differences in quitting status proportions between adult premium and non-premium cigar users. Model 1

controlled for age, sex, race, ethnicity, and highest level of education of adults. Model 2 controlled for age, sex, race, ethnicity, highest level of education, 2016-2018 past 30-day cigarette use, and 2016-2018 past 30-day traditional cigar use. The crude odds ratio, adjusted odds ratio, and 95% confidence interval were reported for each model. Complete data analysis was performed if the missing data was less than 10%, all data analysis was performed using SAS 9.4.

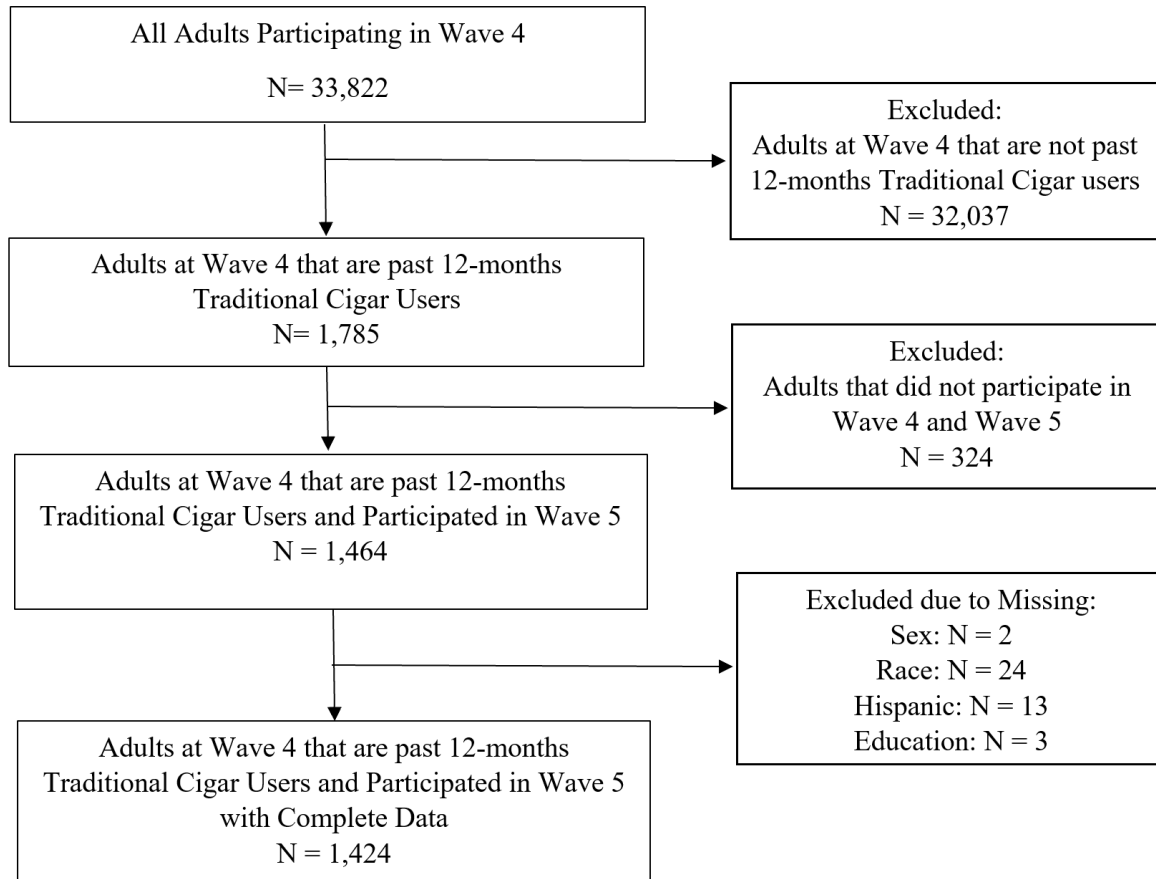
Frequency distributions of the adults that participated in wave 4 (2016-2018) and wave 5 (2018-2019) were used to evaluate the participants duration, and frequency of traditional cigar use at wave 4 (2016-2018). These variables were included for the purpose of additional interpretation of the results, but they had more than 10% missing values.

RESULTS

A total of 1,424 past 12-months adult traditional cigar users at wave 4 (2016-2018) also participated in wave 5 (2018-2019) (Figure 1). Of these 1,424 adults, 35% were premium traditional cigar users, and 65% were non-premium cigar users. There was a difference between male premium cigar users and female premium cigar users with 89.4% of premium cigar users being male and 10.6% were females (p-value = <0.0001). Similarly for non-premium cigar users, 75.7% were male and 24.3% were female (p-value = <0.0001) (Table 1). When evaluating the age of premium cigar and non-premium cigar users most were between the ages 25 to 34 years old, having a percent frequency of 30.4% and 28.6% respectively, compared to lower percentages for other age groups (p-value = < 0.001). The distribution of age between premium and non-premium cigar user groups was different between non-premium cigar users and premium cigar users (p-value = 0.01). For example,

there were more 18-24 years old non-premium cigar users (25.38%) in comparison to 18-24 years old premium cigar users (13.43%).

Figure 1: Flowchart of Study Sample Size: Adults at Wave 4 that are past 12-months Traditional Cigar Users and Participated at Wave 5 with Complete Data



There were no statistically significant differences in the distribution of race between premium and non-premium cigar users (p -value = 0.86). For example, the vast majority of both premium (83.7%) and non-premium (82.2%) cigar users were White (Table 1). Similarly, there were no statistically significant differences in the proportion of Hispanics between premium (88.2%) and non-premium cigar (89.3%) users (p -value = 0.73) (Table 1).

Table 1: Demographic differences between premium and non-premium cigars adult users at wave 4 (2016-2018) and quitting status at wave 5 (2018-2019)

	Premium Cigars n = 465; N = 2,508,154		Non-Premium Cigars n = 959; N = 4,596,277		Total n = 1424; N = 7,104,431	
	n (N)	% (SE)	n (N)	% (SE)	n (N)	% (SE)
Sex						
Male	409 (2,242,246)	89.40 (1.85)	720 (3,477,130)	75.65 (1.94)	1129 (5,719,376)	80.50 (1.68)
Female	56 (265,909)	10.60 (0.76)	239 (1,119,147)	24.35 (1.41)	295 (1,385,055)	19.50 (1.68)
Age in Years						
18-24	111 (336,822)	13.43 (4.74)	402 (1,166,687)	25.38 (1.11)	513 (1,503,509)	21.16 (1.20)
25-34	131 (761,804)	30.37 (1.38)	258 (1,313,557)	28.58 (1.34)	389 (2,075,361)	29.21 (1.66)
35-44	73 (470,846)	18.77 (0.98)	121 (470,846)	17.52 (1.40)	194 (1,276,203)	17.96 (1.83)
45-54	64 (372,566)	14.85 (0.78)	87 (593,235)	12.91 (1.14)	151 (965,801)	13.59 (1.27)
55-64	57 (374,799)	14.94 (0.97)	66 (501,089)	10.90 (1.07)	123 (875,888)	12.33 (1.38)
65 or more	29 (407,668)	7.63 (0.59)	25 (216,351)	4.71 (0.94)	54 (407,668)	5.74 (0.94)

Table 1: Continuation

Race						
White alone	388 (2,099,129)	83.69 (1.76)	774 (3,779,755)	82.24 (2.03)	1162 (5,878,885)	82.75 (1.55)
Black alone	34 (190,007)	7.58 (0.55)	87 (384,338)	8.36 (0.67)	121 (574,345)	8.08 (0.95)
Other*	43 (219,018)	8.73 (0.60)	98 (432,183)	9.40 (1.09)	141 (651,201)	9.17 (1.27)
Hispanic						
No	410 (2,212,891)	88.23 (1.78)	843 (4,105,741)	89.33 (1.84)	1,253 (6,318,632)	88.93 (1.78)
Yes	55 (295,263)	11.77 (1.11)	116 (490,536)	10.67 (0.92)	171 (785,799)	11.07 (1.38)
Highest Level of Education						
Less than High School	23 (85,650)	3.41 (0.34)	79 (309,121)	6.73 (0.53)	102 (394,770)	5.56 (0.67)
GED**	12 (66,765)	2.66 (0.34)	42 (210,782)	4.59 (0.57)	54 (277,547)	3.91 (0.60)
High School Graduate	58 (250,571)	9.99 (0.59)	189 (814,795)	17.73 (1.13)	247 (1,065,366)	15.00 (1.17)
Some College (no degree) or Associates Degree	185 (997,282)	23.76 (1.44)	400 (1,740,975)	37.88 (1.47)	585 (2,738,257)	38.54 (1.71)

Table 1: Continuation

Bachelor's Degree or Advanced Degree	187 (1,107,886)	44.17 (1.40)	249 (1,520,605)	33.08 (1.51)	436 (2,628,491)	36.99 (1.66)
Past 30 Day Cigarette User						
No	302 (1,784,352)	71.14 (1.92)	507 (2,804,164)	61.01 (1.94)	809 (4,588,516)	64.59 (1.53)
Yes	163 (723,803)	28.86 (0.94)	452 (1,792,113)	38.99 (1.30)	615 (2,515,915)	35.41 (1.53)
Past 30 Day Traditional Cigar User						
No	409 (2,254,275)	89.88 (1.81)	914 (4,429,145)	96.36 (1.83)	1,323 (6,683,420)	94.07 (0.85)
Yes	56 (253,879)	10.12 (0.72)	45 (167,132)	3.64 (0.40)	101 (421,011)	5.93 (0.85)
Quitting Status***						
No	309 (1,663,108)	66.31 (1.79)	249 (1,122,557)	24.42 (1.11)	959 (4,596,277)	64.70 (1.87)
Yes	156 (845,046)	33.69 (1.23)	710 (3,473,720)	75.58 (1.90)	465 (2,508,154)	35.30 (1.87)

* = Asian, Alaska Native, Other Pacific Islander

** = General Education Development Test

*** = Measured at Wave 5 (2018-2019)

When evaluating the proportion of the highest level of education between premium and non-premium cigar users, there were statistically significant differences (p -value = 0.0009). Most premium cigar users (44.17%) reported having a bachelor's degree or advanced degree, while most non-premium cigar users (37.9%) reported having some college or an associate's degree (Table 1). In 2016-2018, most of both premium and non-premium cigar users stated they did not use past 30-day cigarettes (71.1% and 61.0%, respectively) and did not use past 30-day cigars (89.9% and 96.4%, respectively), see Table 1.

By Wave 5 (2018-2019), 33.69% of premium cigar users and 75.58% of non-premium cigar users had quit using cigars, defined as reporting to have quit, or have not used in the past 12 months. Table 2 shows the crude and adjusted odds ratios and 95% confidence intervals, comparing premium and non-premium traditional cigar users quitting. In Table 2, model 1 shows the adjusted odds ratio and 95% confidence interval after adjusting for sex, age, race, ethnicity, and highest level of education; and model 2 shows the adjusted odds ratio and 95% confidence interval after adjusting for cigar type, sex, age, race, ethnicity, and highest level of education, 2016-2018 past 30-day cigarette use, and 2016-2018 past 30-day cigar use. Premium cigar users had 84% lower odds of quitting traditional cigars after 2 years of follow up compared to non-premium cigar users after controlling for sex, age, race, ethnicity, highest level of education, past 30-day cigarette use, and past 30-day traditional cigar use (aOR=0.16, 95% CI=0.11-0.24).

The age category of 25-34 years was the highest weighted proportion of age of premium cigar users (see table 1). This result could have been because most traditional cigar users were of younger age (less than 34 years of age). The PATH study asked participants at

Table 2: Demographic differences between premium and non-premium cigars adult users at wave 4 (2016-2018) and quitting status at wave 5 (2018-2019) Model 1: Adjusted for sex, age, race, ethnicity, and highest level of education. Model 2: Adjusted for sex, age, race, ethnicity, highest level of education, past 30-day cigarette use, and past 30-day traditional cigar use.

	Crude Odds Ratio (95% CI) n = 1424	Model 1 Adjusted Odds Ratio (95% CI) n=1424	Model 2 Adjusted Odds Ratio (95% CI) n=1424
Cigar Type			
Non-Premium	REF	REF	REF
Premium	0.16 (0.11, 0.23)	0.15 (0.11, 0.23)	0.16 (0.11, 0.24)
Sex			
Male	REF	REF	REF
Female	0.32 (0.20, 0.50)	0.37 (0.23, 0.57)	0.37 (0.24, 0.58)
Age in Years			
18-24	REF	REF	REF
25-34	0.76 (0.54, 1.08)	0.96 (0.68, 1.36)	0.96 (0.68, 1.35)

Table 2: Continuation

35-44	0.67 (0.44, 1.03)	0.85 (0.51, 1.41)	0.84 (0.51, 1.41)
45-54	0.87 (0.52, 1.44)	1.18 (0.67, 2.08)	1.17 (0.66, 2.06)
55-64	0.47 (0.28, 0.80)	0.65 (0.39, 1.10)	0.65 (0.39, 1.11)
65 or more	1.88 (0.83, 4.26)	3.87 (1.46, 10.30)	3.89 (1.45, 10.39)
Race			
White alone	REF	REF	REF
Black alone	0.95 (0.59, 1.52)	0.77 (0.41, 1.43)	0.77 (0.42, 1.41)
Other*	0.77 (0.42, 1.39)	0.69 (0.38, 1.26)	0.69 (0.38, 1.26)
Hispanic			
No	REF	REF	REF
Yes	0.86 (0.48, 1.54)	1.00 (0.60, 1.66)	1.00 (0.60, 1.66)
Highest Level of Education			
Less than High School	REF	REF	REF
GED**	0.42 (0.17, 1.03)	0.36 (0.12, 1.10)	0.36 (0.12, 1.11)

Table 2: Continuation

High School Graduate	0.50 (0.27, 0.93)	0.46 (0.20, 1.02)	0.46 (0.21, 1.03)
Some College (no degree) or Associates Degree	0.43 (0.24, 0.78)	0.45 (0.21, 0.95)	0.46 (0.21, 1.00)
Bachelor's Degree or Advanced Degree	0.44 (0.24, 0.79)	0.52 (0.23, 1.16)	0.55 (0.76, 1.56)
Past 30 Day Cigarette User			
No	REF	NA***	REF
Yes	1.28 (0.99, 1.65)	NA***	1.09 (0.76, 1.56)
Past 30 Day Traditional Cigar User			
No	REF	NA***	REF
Yes	0.71 (0.41, 1.22)	NA***	1.02 (0.45, 2.29)

* = Asian, Alaska Native, Other Pacific Islander

** = General Education Development Test

*** = These Variables were not adjusted for in Mode

what age group did you first smoke part or all of a traditional cigar, even one or two puffs.

Only 280 of the 1,424 participants responded to that question. Only 51.1% of the 280 participants reported having their first traditional cigar at 18 – 24 years of age (Table 3).

When further evaluating the frequency of use in their entire lifetime of traditional cigars 1,246 out of the 1,424 participants responded that 33.8% had used 1 to 10 traditional cigars in their entire lifetime (Table 4).

Table 3: Frequency distribution of the 1,424 participants that responded to the question “Age group when first smoked part or all of a traditional cigar, even one or two puffs” at wave 4 (2016-2018)

	Premium n (%)	Non-Premium n (%)	Total n (%)
Less than 18 years old	23 (22.1)	51 (29.0)	74 (26.4)
18 to 24 years old	52 (50)	91 (51.7)	143 (51.1)
25 to 34 years old	18 (17.3)	20 (11.4)	38 (13.6)
35 to 44 years old	5 (4.8)	6 (3.4)	11 (3.9)
45 to 54 years old	6 (5.8)	8 (4.6)	14 (5.0)
Total	104 (100)	176 (100)	280 (100)
Missing = 1144			

Table 4: Frequency distribution of the 1,424 participants that responded to the question “Number of traditional cigars smoked in entire life” at wave 4 (2016-2018)

	Premium n (%)	Non-Premium n (%)	Total n (%)
1 or more puffs but never a whole one	27 (7.1)	233 (26.9)	260 (20.9)

Table 4: Continuation

1 to 10 traditional cigars	108 (28.4)	313 (36.2)	421 (33.8)
11 to 20 traditional cigars	76 (20.0)	139 (16.1)	215 (17.3)
21 to 50 traditional cigars	109 (28.6)	115 (13.3)	224 (18.0)
51 to 99 traditional cigars	36 (9.5)	35 (4.1)	71 (5.7)
100 or more traditional cigars	25 (6.6)	30 (3.5)	55 (4.4)
Total	381 (100)	865 (100)	1246 (100)
Missing = 178			

DISCUSSION

The results are innovative as it was the first-time quitting status in premium and non-premium cigar users was evaluated. In a previous study using the Wave 1 (2013-2014) PATH males comprised most premium and non-premium cigar users having 95.8% and 83.9% respectively (Corey et al., 2018). This, however, did not match the study conducted from 1998 to 2019 that suggested there was an increase in women using traditional cigars in the U.S. (Azagba & Shan, 2022). Additionally, that study using Wave 1 (2013-2014) PATH reported that the age group that comprised most premium and non-premium cigar users were 35-54 years of age with a percent frequency of 34.4% and 32.9% respectively and were predominantly non-Hispanic white with a percent frequency of 77.2% and 58.2% respectively (Corey et al., 2018). These results were consistent with our findings for the age group of 35-54 years of age for premium cigar users (33.62%) and non-premium cigar users (30.43%). The majority of the premium cigar users in the study conducted in 2013-2014

completed college or more (38.9%) while the majority of the non-premium cigar users (38.5%) had some college or an associates degree, which were consistent with our study results that showed majority of premium cigar users completed college or more (44.17%) while the majority of non-premium cigar users had some college or an associates degree (37.88%) (Corey et al., 2018).

There were no previous studies that focused on traditional cigar users and the percentage of achieving quitting after two years follow up. However, the results in a 2018 to 2019 US study focusing on the prevalence of cessation of cigarette use withing in the past 12-months of everyday cigarette users had a prevalence of achieving cessation of 7.1% (Walton et al., 2020). These results were lower than the results acquired from our study where 35.30% of past 12-month traditional cigar user achieved quitting status or stopped using traditional cigars in the past 12-months after two years follow up.

Strength and limitations

The strength of the current study was that there was a large percentage of participants in both wave 4 and wave 5 since PATH has a high retention rate (USDHHS et al., 2022). Another strength of the study is that the PATH study is nationally representative data for the U.S. and traditional cigar users in the US are understudied, so the results of the study were representative to the U.S. population and provided information in an understudied field. The limitations of the study included that we were limited to use sociodemographic variables for traditional cigar users as those variables had less than 10% of missing data at wave 4 (2016-2018). With the PATH study being a nationally representative survey, the study was also subjected to response bias from the participants.

CONCLUSION

There is a lack of research regarding the use of traditional cigars in the U.S., the demographics of users, the quitting status of traditional cigar users, and the providing results of premium and non-premium users. This study examines exclusively past 12-month traditional cigar users and categorizes them between premium and non-premium users to further analyze the quitting status of premium and non-premium cigar users, which to our knowledge is the first time this type of analysis has been conducted. The results indicated there was a larger frequency of non-premium cigar users in comparison to premium cigar users and the demographics of many of both premium and non-premium cigar users were non-Hispanic white males ages 25-34 years that had some college or associates degree or bachelor's degree or advanced degree. The results suggested there was a decreased odds ratio of quitting in premium cigar users in comparison to non-premium users before and after adjustment for covariates. The most surprising finding was that majority of premium and non-premium cigar users were between the ages of 25-34 years of age. These results demonstrate the description of premium and non-premium cigar users in the U.S. and their quitting status which can facilitate the creations of effective policies to decrease use of premium and non-premium cigars by targeting groups of users.

APPENDICES

Appendix A: SAS Code for differences in smoking patterns and quitting status between premium and non-premium cigar users after two years of follow up in US adults: findings from the Population Assessment of Tobacco and Health

```
/**** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** */
/* PURPOSE: USING POPULATION ASSESSMENT OF TOBACCO AND HEALTH (PATH)
DATASET IN
/* WAVE 4 AND WAVE 5 TO GENERATE WEIGHTED DESCRIPTIVE STATISTICS AND
WEIGHTED
/* LOGISTIC REGRESSION BETWEEN PREMIUM AND NON PREMIUM CIGARS
/* PREPARE FOR ANALYSYS AND REPORTING
/* PROGRAMMER: SARAH VALENCIA
/*
/* CREATE DATASETS FOR REPORTING:
/* - WEGHTED SUMMARY STATISTICS
/* - WEIGHTED LOGISTIC REGRESSION WITH ODDS RATIOS
/*
/* DATE: March 31, 2022
/**** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** */

/*Importing Files*/
LIBNAME PATH "H:\Thesis\PATH data";run;
Proc cimport infile="H:\Thesis\PATH data\ICPSR_36498-V17\ICPSR_36498-
V17\ICPSR_36498\DS4001\36498-4001-Data.stc" lib=WORK;run;
Proc cimport infile="H:\Thesis\PATH data\ICPSR_36498-V17\ICPSR_36498-
V17\ICPSR_36498\DS4111\36498-4111-Data.stc" lib=WORK;run;
Proc cimport infile="H:\Thesis\PATH data\ICPSR_36498-V17\ICPSR_36498-
V17\ICPSR_36498\DS4321\36498-4321-Data.stc" lib=WORK;run;
Proc cimport infile="H:\Thesis\PATH data\ICPSR_36498-V17\ICPSR_36498-
V17\ICPSR_36498\DS5001\36498-5001-Data.stc" lib=WORK;run;
Proc cimport infile="H:\Thesis\PATH data\ICPSR_36498-V17\ICPSR_36498-
V17\ICPSR_36498\DS5111\36498-5111-Data.stc" lib=WORK;run;
Proc cimport infile="H:\Thesis\PATH data\ICPSR_36498-V17\ICPSR_36498-
V17\ICPSR_36498\DS0001\38008-0001-Data.stc" lib=WORK;run;
Proc cimport infile="H:\Thesis\PATH data\ICPSR_36498-V17\ICPSR_36498-
V17\ICPSR_36498\DS4211\36498-4211-Data.stc" lib=WORK;run;

/*Keep variables needed and choose only current Traditional cigar users*/
/*wave 4*/
Data PATH.Wave4F;
set PATH.Wave4aw;
if R04_AG9003_12M = 1;
keep PersonID R04R_A_AGE6CAT6 R04R_A_SEX R04R_A_RACECAT3 R04R_A_HISP
R04R_A_AM0030/*household income*/
```

```

R04R_A_P30D_CIGS /*PAST 30 DAYS CIG USER*/ R04R_A_P30D_GTRAD /*PAST 30
DAYS TC USER*/ R04_AG1048TC_BRAND
R04_AG1945TC R04_AG1042TC_D R04_AG1043TC_D R04_AG9040TC R04_AG1050TC
R04_AG1008TC R04_AG9051 R04R_A_AM0018_V2;
run;
/* wave 5*/
Data PATH.Wave5F;
set PATH.Wave5aw;
keep PersonID R05R_A_AGE CAT6 R05R_A_SEX R05R_A_RACE CAT3 R05R_A_HISP
R05R_A_AM0030
R05_AC1100 R05_AG1100TC R05_AG1048TC_BRAND R05_AG1010TC R05_AG1009TC_UN
R05_AG1945TC R05_AG1042TC_D R05_AG1043TC_D R05_AG9040TC R05_AG1050TC
R05_AG1008TC R05_AG9051 R05_AG9003_12M;
run;

/*Merge wave 4 with wave 5 to obtain current TC users that participated in
both wave 4 and 5*/
Proc sort data = PATH.Wave4F; by PERSONID;run;
Proc sort data = PATH.Wave5F; by PERSONID;run;
Data PATH.Wave45;
merge PATH.Wave4F (in=i) PATH.Wave5F (in=j);
by PersonID;
if (i=1) and (j=1);
run;

/*Sort and Merge weights in wave 4*/
Proc sort data = PATH.Wave45; by PERSONID;run;
Proc sort data = Work.Da36498p4321; by PERSONID;run;
Proc sort data = Work.Da36498p4211; by PERSONID;run;
Data PATH.Wave45_Weights;
merge PATH.Wave45 (in=i) Work.Da36498p4321 (in=j) Work.Da36498p4211
(in=k);
by PERSONID;
if i;
run;

/*Merge and rename weights into one variable*/

Data Path.Wave45_Weights;
set Path.Wave45_Weights;
if R04_A_C04WGT = . then R04_A_C04WGT = R04_A_S01WGT;

array a(100) R04_A_C04WGT1 - R04_A_C04WGT100;
array b(100) R04_A_S01WGT1 - R04_A_S01WGT100;

do i=1 to 100;
if a(i) = . then a(i) = b(i); end;
run;

/*Class Premium = 0 & NonPremium = 1*/
/*Wave 4*/

```

```

Data PATH.Wave45FC; set PATH.Wave45_Weights;

/*Brand*/
If R04_AG1048TC_BRAND=1005 | R04_AG1048TC_BRAND=1017 |
R04_AG1048TC_BRAND=1018 | R04_AG1048TC_BRAND=1035 |
R04_AG1048TC_BRAND=1047 |
R04_AG1048TC_BRAND=1052 | R04_AG1048TC_BRAND=1056 | R04_AG1048TC_BRAND=
1095| R04_AG1048TC_BRAND=1116 | R04_AG1048TC_BRAND=1124 |
R04_AG1048TC_BRAND=1125 | R04_AG1048TC_BRAND=1136 |
R04_AG1048TC_BRAND=1142 | R04_AG1048TC_BRAND=1154 |
R04_AG1048TC_BRAND=1164 |
R04_AG1048TC_BRAND=1174 | R04_AG1048TC_BRAND=1189 |
R04_AG1048TC_BRAND=1273 | R04_AG1048TC_BRAND=1274 |
R04_AG1048TC_BRAND=1282 |
R04_AG1048TC_BRAND=1288 | R04_AG1048TC_BRAND=1289 |
R04_AG1048TC_BRAND=1293 | R04_AG1048TC_BRAND=9995
then Cigar_type = 0;

Else If R04_AG1048TC_BRAND=1009 | R04_AG1048TC_BRAND=1014 |
R04_AG1048TC_BRAND=1019 | R04_AG1048TC_BRAND=1024 |
R04_AG1048TC_BRAND=1025 |
R04_AG1048TC_BRAND=1026 | R04_AG1048TC_BRAND=1042 |
R04_AG1048TC_BRAND=1055 | R04_AG1048TC_BRAND=1061 |
R04_AG1048TC_BRAND=1064 |
R04_AG1048TC_BRAND=1082 | R04_AG1048TC_BRAND=1084 |
R04_AG1048TC_BRAND=1088 | R04_AG1048TC_BRAND=1096 |
R04_AG1048TC_BRAND=1109 |
R04_AG1048TC_BRAND=1156 | R04_AG1048TC_BRAND=1204 |
R04_AG1048TC_BRAND=1206 | R04_AG1048TC_BRAND=1207 |
R04_AG1048TC_BRAND=1231 |
R04_AG1048TC_BRAND=1239 | R04_AG1048TC_BRAND=1242 |
R04_AG1048TC_BRAND=1266 | R04_AG1048TC_BRAND=1276 |
R04_AG1048TC_BRAND=1287
then Cigar_type = 1;

/*Price*/
Else if R04_AG1043TC_D < 5 then Cigar_type = 1;
Else if (R04_AG1042TC_D <= 10 & R04_AG1043TC_D ne .) then Cigar_type = 1;
Else if R04_AG1042TC_D > 10 then Cigar_type = 0;
Else if R04_AG1043TC_D >= 5 then Cigar_type = 0;

Else if R04_AG1050TC = 1 | R04_AG1050TC = 3 then Cigar_type = 1;
Else if R04_AG1050TC = 2 then Cigar_type = 0;
Else if R04_AG1008TC = 1 | R04_AG1008TC = 3 then Cigar_type = 1;
Else if R04_AG9051 = 1 then Cigar_type = 1;
run;

/*Quit variable 0 = yes 1 = no*/
Data PATH.Wave45FCL; set PATH.Wave45FC;

If R05_AG1010TC = 1 then QUIT_TC = 0;

```

```

Else if R05_AG1010TC = 2 then QUIT_TC = 1;
Else if R05_AG9003_12M = 1 then QUIT_TC = 1;
Else if R05_AG9003_12M = 2 then QUIT_TC = 0;
Run;

/*Look and Remove Missing Values*/
Data PATH.Wave45FCL; set PATH.Wave45FCL;
If R04R_A_SEX = . then delete;
If R04R_A_RACECAT3 = . then delete;
If R04R_A_HISP = . then delete;
If R04R_A_AM0018_V2 = . then delete;
RUN;

/*Descriptive Analysis*/
Proc SurveyFreq data=PATH.Wave45FCL VarMethod=BRR(FAY=0.3);
Tables R04R_A_SEX*Cigar_type/CHISQ COLUMN;
weight R04_A_C04WGT;
Repweights R04_A_C04WGT1-R04_A_C04WGT100;
run;
Proc SurveyFreq data=PATH.Wave45FCL VarMethod=BRR(FAY=0.3);
Tables R04R_A_AGE6CAT6*Cigar_type/CHISQ COLUMN;
weight R04_A_C04WGT;
Repweights R04_A_C04WGT1-R04_A_C04WGT100;
run;
Proc SurveyFreq data=PATH.Wave45FCL VarMethod=BRR(FAY=0.3);
Tables R04R_A_RACECAT3*Cigar_type/CHISQ COLUMN;
weight R04_A_C04WGT;
Repweights R04_A_C04WGT1-R04_A_C04WGT100;
run;
Proc SurveyFreq data=PATH.Wave45FCL VarMethod=BRR(FAY=0.3);
Tables R04R_A_HISP*Cigar_type/CHISQ COLUMN;
weight R04_A_C04WGT;
Repweights R04_A_C04WGT1-R04_A_C04WGT100;
run;
Proc SurveyFreq data=PATH.Wave45FCL VarMethod=BRR(FAY=0.3);
Tables R04R_A_AM0018_V2*Cigar_type/CHISQ COLUMN;
weight R04_A_C04WGT;
Repweights R04_A_C04WGT1-R04_A_C04WGT100;
run;
Proc SurveyFreq data=PATH.Wave45FCL VarMethod=BRR(FAY=0.3);
Tables R04R_A_P30D_CIGS*Cigar_type/CHISQ COLUMN;
weight R04_A_C04WGT;
Repweights R04_A_C04WGT1-R04_A_C04WGT100;
run;
Proc SurveyFreq data=PATH.Wave45FCL VarMethod=BRR(FAY=0.3);
Tables R04R_A_P30D_GTRAD*Cigar_type/CHISQ COLUMN;
weight R04_A_C04WGT;
Repweights R04_A_C04WGT1-R04_A_C04WGT100;
run;
Proc SurveyFreq data=PATH.Wave45FCL VarMethod=BRR(FAY=0.3);
Tables Cigar_type/CHISQ COLUMN;

```

```

weight R04_A_C04WGT;
Repweights R04_A_C04WGT1-R04_A_C04WGT100;
run;
Proc SurveyFreq data=PATH.Wave45FCL VarMethod=BRR (FAY=0.3);
Tables QUIT_TC*Cigar_type/CHISQ COLUMN;
weight R04_A_C04WGT;
Repweights R04_A_C04WGT1-R04_A_C04WGT100;
run;

/*Crude Logistic Regression*/
proc surveylogistic data=PATH.Wave45FCL VarMethod=BRR (FAY=0.3);
weight R04_A_C04WGT;
Repweights R04_A_C04WGT1-R04_A_C04WGT100;
class Cigar_type(ref = last)/ param = GLM;
model QUIT_TC(event = '0') = Cigar_type;
lsmeans Cigar_type/ e ilink;
ods output coef=coeffs;
store out=ques;run;

proc surveylogistic data=PATH.Wave45FCL VarMethod=BRR (FAY=0.3);
weight R04_A_C04WGT;
Repweights R04_A_C04WGT1-R04_A_C04WGT100;
class R04R_A_SEX(ref = last)/ param = GLM;
model QUIT_TC(event = '0') = R04R_A_SEX;
lsmeans R04R_A_SEX/ e ilink;
ods output coef=coeffs;
store out=ques;run;

proc surveylogistic data=PATH.Wave45FCL VarMethod=BRR (FAY=0.3);
weight R04_A_C04WGT;
Repweights R04_A_C04WGT1-R04_A_C04WGT100;
class R04R_A_AGE6(ref = first)/ param = GLM;
model QUIT_TC (event = '0')= R04R_A_AGE6;
lsmeans R04R_A_AGE6/ e ilink;
ods output coef=coeffs;
store out=ques;run;

proc surveylogistic data=PATH.Wave45FCL VarMethod=BRR (FAY=0.3);
weight R04_A_C04WGT;
Repweights R04_A_C04WGT1-R04_A_C04WGT100;
class R04R_A_RACE3(ref = first)/ param = GLM;
model QUIT_TC = R04R_A_RACE3;
lsmeans R04R_A_RACE3/ e ilink;
ods output coef=coeffs;
store out=ques;run;

proc surveylogistic data=PATH.Wave45FCL VarMethod=BRR (FAY=0.3);
weight R04_A_C04WGT;
Repweights R04_A_C04WGT1-R04_A_C04WGT100;
class R04R_A_HISP(ref = last)/ param = GLM;
model QUIT_TC = R04R_A_HISP;
lsmeans R04R_A_HISP/ e ilink;

```

```
ods output coef=coeffs;
store out=ques;run;
```

```
proc surveylogistic data=PATH.Wave45FCL VarMethod=BRR(FAY=0.3);
weight R04_A_C04WGT;
Repweights R04_A_C04WGT1-R04_A_C04WGT100;
class R04R_A_AM0018_V2(ref = first)/ param = GLM;
model QUIT_TC = R04R_A_AM0018_V2;
lsmeans R04R_A_AM0018_V2/ e ilink;
ods output coef=coeffs;
store out=ques;run;
```

```
proc surveylogistic data=PATH.Wave45FCL VarMethod=BRR(FAY=0.3);
weight R04_A_C04WGT;
Repweights R04_A_C04WGT1-R04_A_C04WGT100;
class R04R_A_P30D_CIGS(ref = last)/ param = GLM;
model QUIT_TC = R04R_A_P30D_CIGS;
lsmeans R04R_A_P30D_CIGS/ e ilink;
ods output coef=coeffs;
store out=ques;run;
```

```
proc surveylogistic data=PATH.Wave45FCL VarMethod=BRR(FAY=0.3);
weight R04_A_C04WGT;
Repweights R04_A_C04WGT1-R04_A_C04WGT100;
class R04R_A_P30D_GTRAD(ref = last)/ param = GLM;
model QUIT_TC(event = '0') = R04R_A_P30D_GTRAD;
lsmeans R04R_A_P30D_GTRAD/ e ilink;
ods output coef=coeffs;
store out=ques;run;
```

```
/*Weigthed Logistic Regression Model 1*/
```

```
proc surveylogistic data=PATH.Wave45FCL VarMethod=BRR(FAY=0.3) order=data;
weight R04_A_C04WGT;
Repweights R04_A_C04WGT1-R04_A_C04WGT100;
class Cigar_type (ref = last) R04R_A_SEX (ref = last) R04R_A_AGE6 (ref = first) R04R_A_RACECAT3 (ref = first) R04R_A_HISP (ref = last) R04R_A_AM0018_V2 (ref = first) / param = GLM;
model QUIT_TC (event = '0') = Cigar_type R04R_A_SEX R04R_A_AGE6 R04R_A_RACECAT3 R04R_A_HISP R04R_A_AM0018_V2 ;
lsmeans Cigar_type R04R_A_SEX R04R_A_AGE6 R04R_A_RACECAT3 R04R_A_HISP R04R_A_AM0018_V2/ e ilink;
ods output coef=coeffs;
store out=ques;
run;
```

```
/*Weigthed Logistic Regression Model 2*/
```

```
proc surveylogistic data=PATH.Wave45FCL VarMethod=BRR(FAY=0.3) order=data;
weight R04_A_C04WGT;
Repweights R04_A_C04WGT1-R04_A_C04WGT100;
class Cigar_type (ref = last) R04R_A_SEX (ref = last) R04R_A_AGE6 (ref = first) R04R_A_RACECAT3 (ref = first)
```

```

R04R_A_HISP (ref = last) R04R_A_AM0018_V2 (ref = first) R04R_A_P30D_CIGS
(ref = last) R04R_A_P30D_GTRAD (ref = last) / param = GLM;
model QUIT_TC (event = '0') = Cigar_type R04R_A_SEX R04R_A_AGECA6
R04R_A_RACECAT3 R04R_A_HISP
R04R_A_AM0018_V2 R04R_A_P30D_CIGS
R04R_A_P30D_GTRAD;
lsmeans Cigar_type R04R_A_SEX R04R_A_AGECA6 R04R_A_RACECAT3 R04R_A_HISP
R04R_A_AM0018_V2 R04R_A_P30D_CIGS
R04R_A_P30D_GTRAD / e ilink;
ods output coef=coeffs;
store out=ques;
run;

```

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