TOBACCO USE AMONG BROOKLYN COLLEGE STUDENTS

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ABSTRACT

Background: Present study was carried out with the aim of examining the current prevalence of tobacco use and assesses the mean difference of awareness of the harmful effects of tobacco use among smokers and non-smokers in a based sample of 100 Brooklyn College students.

Methods: Present research is a cross-sectional study, conducted amongst 100 Brooklyn College students of 16-19 to 30-older year age group. An anonymous self-administered questionnaire was used to collect information on the extent and pattern of tobacco consumption, factors associated with use/non-use of tobacco products, and awareness of the harmful effects of tobacco use.

Results: The results in the present study revealed that, out of total students (n = 100), 57 (57%) were males and 43 (43%) were females. 36 students (36%) (22% males and 14% females) were found to be cigarette smokers. Among these, 35 i.e., 97.22% (35/36) reported that they have smoked 100 or more cigarettes in their life. The median (SD) age of initiation of tobacco use was 2 (0.732) years; 86% of smokers and non smokers were completely aware that tobacco was harmful in terms of cancer diseases, and 8% were somewhat aware. The most common motivations Brooklyn College students started using tobacco have been identified as lower self-esteem (12.81%) by non smokers. Smokers (11.36%) reported that stress was the most common reason for the continuation of tobacco use. The research revealed that cigarette smoking was the most frequent form of using tobacco, and the highest prevalence was among those aged 19 to 21 years (36.4% male and 23.1% female).

Conclusion: This study provided wide information about gender prevalence of tobacco use in relation to age group, race/ethnicity, and kind of tobacco smoking in a sample of 100 Brooklyn College students.

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Introduction

Since I was in middle school, I have been taught that tobacco use is one of the most important causes of disease and death all over the world. In spite of the known association of major illnesses with tobacco, its continued use on College campuses have noticed a worrisome increase. Although over the past several years results of self-report research analyzed factors that contribute to this behavior, no one, as far as I know, has been conducted specifically for Brooklyn College students. Statistically, very little is known about the mean difference of awareness of the harmful effects of tobacco use between smokers and non-smokers. In view of above, this study sought: (1) to determine the current prevalence of tobacco use - among a sample of 100 Brooklyn College students - based on age group, race/ethnicity, household income, daily tobacco use, type of tobacco use, and gender; (2) to assess factors influencing the use of tobacco product, and the mean differences of the awareness of the harmful effects of tobacco use among smokers and non-smokers; (3) to determine, empirically, relationships between dissatisfaction, depression, and body weight.

This paper is divided into three major parts. In the first part (chapter 1) I will present the descriptive analysis of the research. The second part (chapter 2) comprises differences analysis (independent samples t-test, paired samples t-test and ANOVA). In the third part (Chapter 3) I will provide and analyze the impact of depression and body weight on dissatisfaction. Finally, I will draw a comprehensive conclusion in which I will summarize the findings of the study.

Methodology

A cross-sectional study conducted amongst 100 Brooklyn College students of 16-19 to 30-older year age group. An anonymous, self-administered questionnaire was used on the extent and patterns of tobacco consumption, the age of initiation of tobacco use, and awareness among

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students about the ill-effects of tobacco use. Information was also collected on the perceived factors influencing the use of tobacco products. After explaining the purpose of the survey, instructions were given on how to fill the questionnaire. The voluntary and anonymous nature of participation in the survey was also explained.

The data collected was tabulated, coded and analyzed using PASW for Windows, version 18.0. Correlation test, Fishers' exact test, and Chi square test, etc. were used for evaluating the statistical significance of the association between the independent and the dependent factors. For all the tests, P-value < 0.05 was considered significant. Ultimately, differences analyses were done to assess comparisons of means among variables.

Study period: The survey was conducted from October 22 to October 30, 2010.

Definition: In order to assess the current prevalence of tobacco use, students were asked if they had smoked 100 cigarettes or cigars in their life. Current prevalence of tobacco use is defined as "having smoked at least 100 cigarettes or pipes or cigars in a lifetime and currently smoking some day or every day"[1].

Limitations of the study

The results of this study must be viewed within the context of the following limitations. First, in view of the small scale of the survey, the prevalence of current tobacco smokers observed in the study could be an underestimation. Second, there could be a possibility that smokers of tobacco would not have participated in the study despite the assurance of maintaining confidentiality of the information provided. In addition, the levels of reliability and validity in the specific settings where data collection occurred may result in differential bias. Although, in the design and

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[1] This is the definition of the Behavioral Risk Factor Surveillance System in the United States (BRFSS).

administration of the surveys, various steps were taken to mitigate such bias, for example students were participated anonymously. This was aimed to avoid intentional misreporting for fear of reprisals. However, it is not possible to judge how far the study participants completed the questionnaires as truthfully as possible.

Chapter I

<u>Descriptive Analysis</u>

1.1   <u>Frequency Analysis for Smokers/non-Smokers</u>

The frequency analysis results of the 100 Brooklyn College students who participated in the survey were analyzed. Of whom, 36% reported to be cigarette smokers. This frequency indicates that Brooklyn College students are not highly exposed to the use of tobacco smoking. Maybe it's because of their level of awareness of the various health concerns which are affiliated with tobacco use.
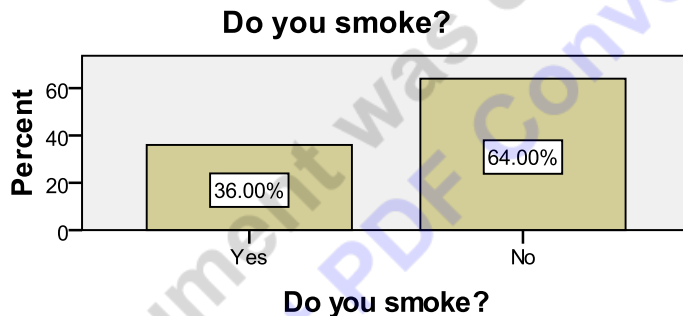
Frequency Analysis for Smokers/non-Smokers

Do you smoke?

1.2   <u>Prevalence of Tobacco Use among Students</u>
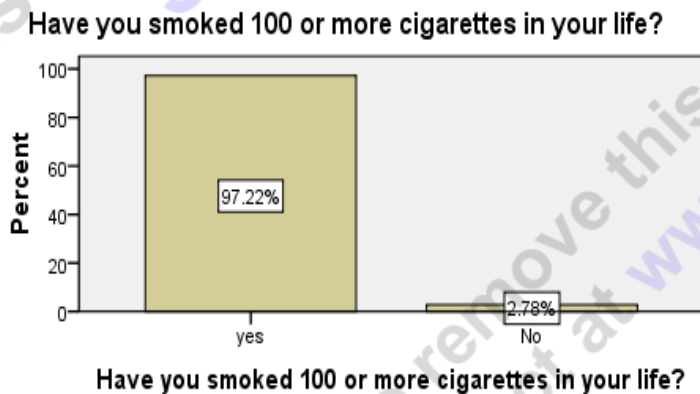
Among 36% of Brooklyn College student smokers, 97.22% (35/36) (22 males=62.86%, and 13 females=37.14%) reported that they have smoked 100 or more cigarettes in their life.

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1.3   Prevalence of Tobacco Use by Age Group and Gender

The following chart shows that the highest smoking prevalence of Brooklyn College students

(χ2= 16.16, **P**<0.05) was among those aged 19 to 21 years (22.86% male and 8.57% female).

Prevalence of Tobacco Use by Age Group and Gender
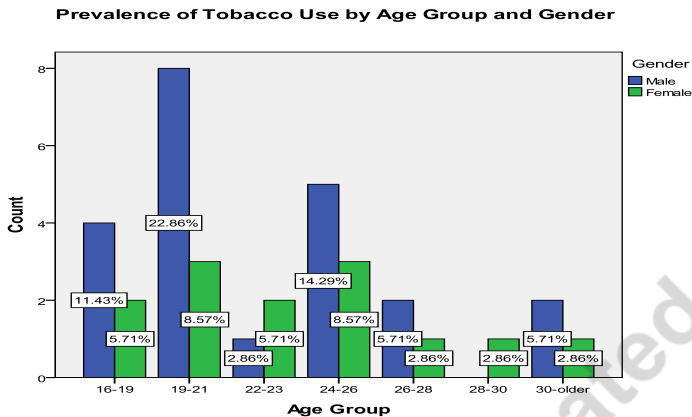
There was a real decrease in smoking prevalence among 28-30 year age group compared to the high prevalence in the 19-21 year age group. Among the youngest group (16-19),

more males than females were smokers (11.43% male and 5.71% female). Overall, smoking was

persistently prevalent among males than females. An exception occurs for ages 22-23 years,

where females overtake males in terms of tobacco use (2.86% male and 5.71% female). For ages

30 years and over, smoking was more prevalent among males (5.71% male − 2.86% female). It

was likely that smoking will become more prevalent among males of all ages generally.

1.4   Prevalence of Tobacco Use by Race/Ethnicity and Gender

Prevalence of Tobacco Use by Race/Ethnicity and Gender
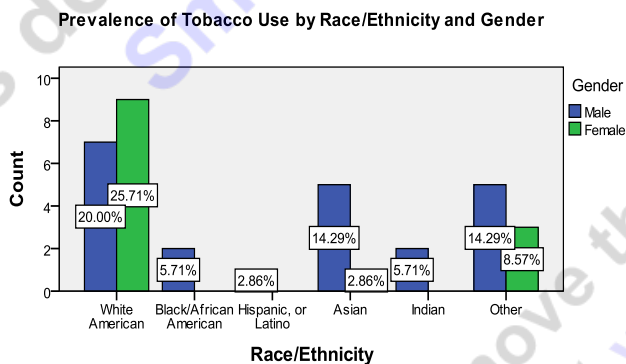
Our analysis demonstrated, among Brooklyn College students, that Black/African/Americans were far less likely to be heavy smoker than white Americans. This data

showed racial differences in current smoking prevalence among students. This finding should

imply a lower risk for smoking related disease among black American students at Brooklyn College compare to white American students. White American Brooklyn College females ($\chi^2 = 16.53$, P<0.05) have the highest rate of smoking (20.00% male and 25.71% female). While, in terms of prevalence of tobacco use, Hispanic or Latino has the lowest value (2.85% male and 0.0% female).

1.5 Prevalence of Current Smoker by Type of Tobacco use and Gender
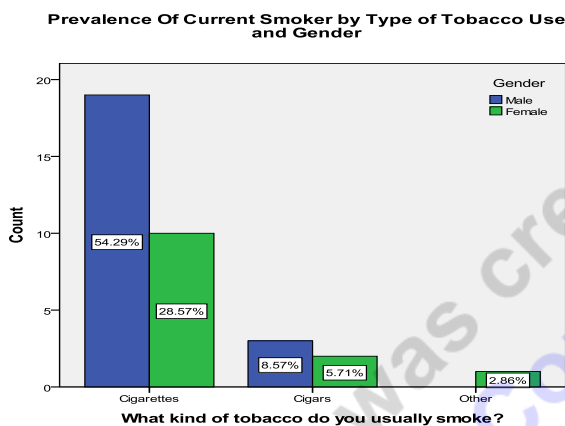
When asked, what kind of tobacco do you usually smoke? Brooklyn College student smokers mainly indicated that cigarette smoking was the most frequent form of using tobacco. With statistical evidence ($\chi^2 = 15.13$, P<0.05) we found that there was a relationship between type of tobacco use and gender. 82.9% (54.3% male, 28.6% female) students reported being chosen cigarettes. This was approximately six times of those who chose cigar as a type of tobacco use.

1.6 Awareness of the Lung Cancer Health Concern

When asked, specifically, to what extent are you aware of the lung cancer health concern which is affiliated with tobacco use? Of the 100 students, 86% of smokers and non smokers were
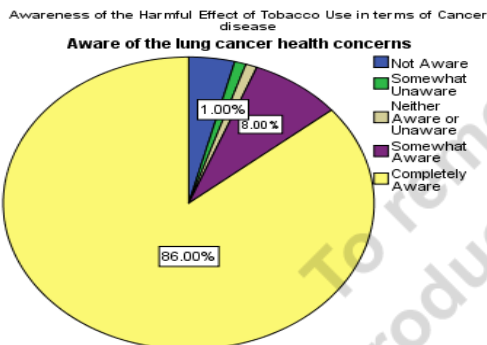
completely aware that tobacco use was harmful in terms of cancer disease; only 4% reported that they were not aware.

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1.7   Factors (initiation, continuation) Contribute to the Use of Tobacco

When analyzed factors that might be influenced the use of tobacco smoking, non-smokers (12.81%) indicated that low self-esteem was the most common reason. Other reasons included consuming for the sake of dissatisfaction (11.03%), and depression

Factors Contribute to the Use of Tobacco

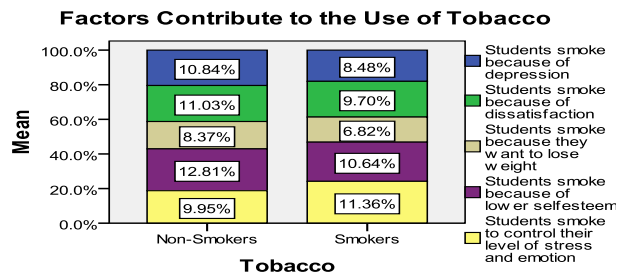(10.84%). Smokers (11.36%) reported that stress was the most common reason for the continuation of tobacco use.

1.8   Discussion

When comparing my findings from another one that was published by American Medical Association (JAMA)[2] on August 9, 2000, the prevalence of current tobacco use was found to be much lower than that reported by JAMA (60%). My findings indicated that prevalence of tobacco smoking is significantly linked with ethnicity, which is similar to observations of JAMA study. Also, in my study, smokers said that stress is the most common factor for using tobacco; while, JAMA findings showed "influence from Friends" was the most common factors.

Chapter 2

Differences Analysis

2-1   Independent Samples T-test

At this point, we would like to provide answers to the following question: Is there a difference in the average number of awareness of the harmful effects (lung cancer)[3] of tobacco use among smokers and non-smokers? To answer this question, two hypotheses were formulated:

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[2] Nancy A. Rigotti, MD; Jae Eun Lee, DrPH; Henry Wechsler, phD (August 9, 2000) *US College Students' Use of Tobacco Products.* Results of a National Survey. Journal America Medical Association (JAMA) vol. 284, No 6 Retrieved December 6, 2010, from www.jama.ama-assn.org

[3] **Variable = "lung cancer".** This variable measure the level of awareness of BC students with the health concerns. **This is a 5-scale (1 = Not aware, 2 = Somewhat unaware, 3 = Neither aware nor unaware, 4 = Somewhat aware, 5 = completely aware.**

H$_0$: There is **no** difference between the average number of awareness of the harmful effect (lung cancer) of tobacco use between smokers and non-smokers ($\overline{x}$ (smoker) = $\overline{x}$ (nonsmoker)).

H$_1$: There is significant difference between the average number of awareness of the harmful effect (lung cancer) of tobacco use between smokers and non-smokers ($\overline{x}$ (smoker) ≠ $\overline{x}$ (nonsmoker)).

Smokers and non-Smokers Differences for the Awareness of the Harmful Effect (Lung Cancer) of Tobacco Use

Variable	Smokers n=36		Non-Smokers n=64		Mean Differences	df	T
	M	SD	M	SD			
Awareness of the lung cancer health concerns	4.53	1.207	4.81	0.614	-0.28	98	-1.565*

* P > .05

<u>Explanation</u>: The mean difference in the degree of awareness of lung cancer (4.53 – 4.81=-0.28) was not sprouted between smokers and non-smokers. The value of t, which is -1.565, was not statistically significant (p=0.121). Therefore, the alternate hypothesis was rejected. Thus, this is a high level of evidence that there was **no** statistical difference between the average number of awareness of the harmful effect (lung cancer) of tobacco use among smokers and non-smokers ($\overline{x}$ (smoker) = $\overline{x}$ (nonsmoker)).

Now, is there, on average, an influence of depression and dissatisfaction on the use of tobacco use among Brooklyn College students? This question will be answered by using the Paired-Samples T Test.

2-.2   Paired-Samples T Test

Two statements have been assumed:

H$_0$: On average there is **no** influence of depression and dissatisfaction on the use of tobacco among Brooklyn College students.

H$_1$: On average there is an influence of depression and dissatisfaction on the use of tobacco among Brooklyn College students?

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The hypothesis is that tobacco use among Brooklyn College students, on average, are not influenced by factors of depression and dissatisfaction[4].

Paired Differences of Depression and Dissatisfaction on the Use of Tobacco among Brooklyn College students

	Depression	**Dissatisfaction**	**T**	**df**	**Correlation**
Mean	2.63	2.87	-2.002*	99	0.401
N	100	100			
SD	1.152	1.031			

* P ≤.05

Answer: **Yes**

Explanation: The observed mean difference was (2.63 - 2.87) = -.240. Since the value of t was -2.002 at $p \leq .048$, the mean difference (-.240) between "*depression*" and "*dissatisfaction*" was statistically significant. According to the Sig. of 0.048 (which is less than 0.05), the above hypothesis was rejected. Therefore, it inferred, on average, that tobacco use among Brooklyn College students were influenced by factors of depression and dissatisfaction. Furthermore, 0.401 indicated that there was a moderate relationship between the two variables.

2.3 Ouse-Way Analysis of Variance (One-Way Anova)

At this level, we wanted to test whether there is significant difference in the means of agreement of the age groups (19-21; 24-26; 28-30) for the importance of depression as a contributive factor to the use of tobacco smoking?

H_0: The three age groups exhibit the same kind of agreement and are not different from one another.

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[4] **Variable 1= "Depression"=** measures the level of agreement of depression on the use of tobacco smoking among Brooklyn College students. This is a 5-point scale (1 = Strongly agree, 2 = Agree, 3 = Neither agree or disagree, 4 = Disagree, 5 = Strongly agree)

Variable 2= "Dissatisfaction"= measures the level of agreement of dissatisfaction on the use of tobacco smoking among Brooklyn College students. This is a 5-point scale (1 = Strongly agree, 2 = Agree, 3 = Neither agree or disagree, 4 = Disagree, 5 = Strongly agree).

H[1]: The three age groups do not exhibit the same kind of agreement and are different from one another.

Differences for the Importance of Depression as a Contributive Factor to the Use of Tobacco Smoking by Age Group

Variable	19-21		24-26		28-30		ANOVA
	M	SD	M	SD	M	SD	F
Depression	2.35	1.041	2.56	1.097	2.67	1.155	0.288*

* P > .05

Reporting the analysis results:

P > .05 indicated that the null hypothesis cannot be rejected, leading to the following conclusion:

There is no significant difference between the means of the three age groups for the awareness of

the harmful effect (lung cancer) of tobacco use. Thus, all the three age groups exhibit the same

kind of agreement and they are not different from one another.

Chapter 3

Multiple Linear Regression Analysis

Through the following regression, our ambition consisted in demonstrating how body weight and

depression influence the level of dissatisfaction.

3.1   Review Literature

The specification of the following regression was supported by two different studies: The first

one was a recent research, conducted in 2010 by Natalie Phillips and Anton F. de Man[5], which

assessed the relationships between weight status and degree of satisfaction in adult men and

women. Results showed that an "important proportion of adult women and men were dissatisfied

with discrepancies they perceived between their current and ideal body shape". That is, there is a

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[5] Nathalie Phillips & Anton F. de Man (2010). *Weight Status and Body Image Satisfaction in Adult Men and Women.* North American Journal of Psychology (NAJP) 1, 171- 184. Retrieved November 27, 2010, from http://findarticles.com/p/articles/mi_6894/is_1_12/ai_n53729358/

positive linear relationship between current weight status and body shape dissatisfaction. As weight increases, body shape dissatisfaction rises.

The second study, written by David A. Clark[6], argued that "the presence of depressive symptoms is highly implied dissatisfaction and a decrease in well-being". That is to say, as depressive symptoms of someone increase, his level of dissatisfaction increases. Thus, between these two variables, there is a positive linear relationship[7].

3.2   Specification of the Model

$$Y^{8}_i = \beta_0 + \beta_1 X^{9}_1 + \beta 2 X^{10}_2 + U_t$$

3.3   Hypothesize the Expected Signs of the Coefficients

we expect, as menntioned in literature review, that both slopes - β_1 and β_2 - will be posive.

3.4   Estimate and Evaluate the Equation

Comuputer Output (Using the PASW Program) (Data in annex under label regression econometric)

$$\hat{Y}_t = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \varepsilon_i$$

$$\hat{Y}_t = 1.606 + 0.284\ X1 + 0.249\ X2 \qquad d = 2 \qquad VIF = 1.118$$
$$\quad\ (0.258)\ \ (0.085)\ \ \ \ (0.090)$$

t→ 6.236   3.345   2.750   F = 35.410 $P < 0.05$

n=100   **R-squared = 0.422**   **Adjusted R-squared = 0.410**

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[6] David A. Clark, Aaron T. Beck, Brad A. Alford, (1999). *Scientific Foundations of Cognitive Theory and Therapy of Depression*. Canada

[7] The scatter plot in appendix, more or less, supports the above ideas in terms of linear relationships between these three variables

[8] **Yi = Dissatisfaction** = the state of being dissatisfied, unsatisfied, or discontented; uneasiness proceeding from the want of gratification, or from disappointed wishes and expectations.

[9] **X1= Weight status** = refers to the weight of a person's body

[10] **X2= Depression** = is a common mental disorder that presents with depressed mood, loss of interest or pleasure, feelings of guilt or low self-worth, disturbed sleep or appetite, low energy, and poor concentration.

3.5 <u>Analysis</u>

β_1: implies that for every extra weight, dissatisfaction will go up by 0.284. This appears to be sensible. β_2: if the level of depression increases, dissatisfaction will go up by 0.249. For F = 35.410, P<0.05, the overall fit of the estimate equation between dissatisfaction, depression, and body weight was statically significant. 41% of the total variation of dissatisfaction as a dependent variable was being explained by body weight and depression. Individually, all parameters were statistically significant. This is a proof that depression and body weight was being influenced by dissatisfaction. Ultimately, no serial correlation and multicollinearity were found in the model (d=2, VIF = 1.118 <5).

It appears that these regression results entirely confirm the theory that dissatisfaction is a linear function of body weight and depression.

But are these regression results reliable? Are they really telling us something about factors that influence dissatisfaction, which influence the use of tobacco? If they are, this is important information authorities should think about and bring solution. If not, they are likely to be misleading.

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<u>Conclusion</u>

Through this study, we came to a significant conclusion that cigarette smoking was the most frequent form of using tobacco among Brooklyn College students, and the highest prevalence was among those aged 19 to 21 years. The existence of an association between race/ethnicity and tobacco use highlights the importance of the spread of the epidemic of the use of tobacco which may be an indication that the trend of tobacco use is deep-rooted and not a recent one.

Most (86%) of the students were aware of the harmful effect of tobacco use, and we amply demonstrated that there was no statistical difference between the average number of awareness of the harmful effect of tobacco use among smokers and non-smokers.

The overwhelming effect of stress, depression, low self-esteem, dissatisfaction, and depression on the use of tobacco is a matter of serious problem because it is very difficult to restrain these factors, and prevent their effects.

These findings have implication for universities because the visibility of tobacco products on campus, even if used intermittently, sends a dangerous message about the social acceptability of tobacco use.

As one of the few tobacco use prevalence research in this institution, we suggest that, larger systematic studies be conducted to better understand tobacco use and its associated factors among students.

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APPENDIX-1 <u>Survey Questionnaire</u>

2010 Survey	Tobacco Use Among Brooklyn College Students
Major:	**Instructor:**

Hello, my name is --. I am a graduate student in business economics at Brooklyn College of the City University of New York (CUNY). Today I am conducting a survey on the use of tobacco smoking among Brooklyn College students. I am interesting in having your valuable opinion about this topic. It will take less than ten minutes to answer these questions. Your participation is anonymous and voluntary, and your responses will be kept completely confidential. You may refuse to answer any question or withdraw from the study at any time. I'll continue if I have your permission.

Agree

Great!

Are you a Brooklyn College student?

❐ Yes (start at survey I)

❐ No → I am sorry; this survey is designed for only Brooklyn College students. Thank you for agreeing to participate.

Survey I

1- Are you currently a full time or a part time student?

❐	❐
Full time	**Part time**

2- Do you smoke?

❐	❐
Yes	No (**if you say no, skip survey II and III**)

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Survey II (The Use of Tobacco)

1- At what age did you smoke your first cigarette?

☐	☐	☐	☐	☐
under16	16-20	21-25	26-30	Over 30

2- Have you smoked 100 or more cigarettes in your life?

☐	☐
Yes	No

3- On average, how many cigarettes do you smoke daily?

☐	☐	☐	☐	☐	☐
5 or less	6-10	11-15	16-20	21-25	More than 25

4- What kind of tobacco do you usually smoke?

☐ Cigarettes

☐ Cigars

☐ Other _____

5- Have you ever considered quitting?

☐	☐
Yes	No

Survey III (Regarding Your Household)

1. Overall, how does your family (spouse, parents, etc.) feel about your smoking?

☐	☐	☐	☐
They accept	They don't care	They don't like it	They don't know that I smoke

Survey IV Your Judgments

1- Please, provide your degree of agreement on how the following factors contribute to the use of tobacco smoking among Brooklyn College students.

Students usually smoke because	Strongly Agree	Agree	Neither Agree or Disagree	Disagree	Strongly Disagree
Lower self esteem	❑	❑	❑	❑	❑
Depression	❑	❑	❑	❑	❑
They are dissatisfied	❑	❑	❑	❑	❑
Their friends smoke	❑	❑	❑	❑	❑
Influence by spouse or partner	❑	❑	❑	❑	❑
Need to lose weight	❑	❑	❑	❑	❑
Control of stress level and emotion	❑	❑	❑	❑	❑
It's relaxing and cool	❑	❑	❑	❑	❑
Curiosity	❑	❑	❑	❑	❑
Extra curriculum activity	❑	❑	❑	❑	❑
A person in their household smoke	❑	❑	❑	❑	❑
Other(specify)					

2- To what extent are you aware of the various health concerns which are affiliated with tobacco use?

	Not Aware	Somewhat Unaware	Neither Aware or Unaware	Somewhat Aware	Completely Aware
Lung Cancer	❑	❑	❑	❑	❑
Heart Disease	❑	❑	❑	❑	❑
Leukemia	❑	❑	❑	❑	❑
Dental caries	❑	❑	❑	❑	❑
Cancers of the cervix	❑	❑	❑	❑	❑
Kidney	❑	❑	❑	❑	❑
Pancreas and stomach illness	❑	❑	❑	❑	❑
Cataracts (loss of vision)	❑	❑	❑	❑	❑
Pneumonia	❑	❑	❑	❑	❑

3- How likely are you to encourage your friends or yourself to stop smoking? (Place an X at the position of the line that best reflects your judgments.)

Very Likely_____**Very Unlikely**
0   1   2   3   4   5

Survey V (Demographic Questions)

Choose the answer that best describes you.

1- What is your age group?

☐	☐	☐	☐	☐	☐	☐
16-19	19-21	22-23	24-26	26-28	28-30	30--Older

2- What is your gender?

☐	☐
Male	Female

3- What is your marital status?

☐	☐	☐	☐	☐
Single/ Never Married	Married/Domestic partner	Divorced	Widowed	Separated

4- What is your household income?

☐	☐	☐
Under $30,000	$30,000.00-50,000.00	Above $50,000.00

5- What is your educational level?

☐	☐	☐
Undergraduate	Graduate	Post-Graduate

6- If you're an undergraduate student, what is your class level?

☐	☐	☐	☐
Freshman (< 30 credits)	Sophomore (30 to 59 credits)	Junior (60 to 89 credits)	Senior (>90 credits)

7- What is your race/ethnicity?

☐	☐	☐	☐	☐	☐
White American	Black/African American	Hispanic, or Latino	Asian	Indian	Other

8- What is your religion?

☐	☐	☐	☐	☐
Christian	Islam	Hindu	Buddhist	Other

9- How many people live in your household?

☐	☐	☐	☐	☐	☐	☐
1	2	3	4	5	6	7 or more

10- What is your employment status?

☐	☐	☐	☐	☐
Employment for wages	Self employed	Out of work	Retired	Student only/not working

Table # 1

Mode and Standard Deviations of Prevalence of Tobacco Use

	Mode	SD	N
Students Smoker/non Smoker	2	0.482	100
Smoked 100 or Cigarettes in their Life	1	0.167	36

Table #2

Relationships among Gender and Variables Listed in the First Colum in terms of Prevalence of Tobacco Use.

	Men (n = 57)	Women (n = 43)	χ^2
Age Group	22	13	16.16 **
Race/Ethnicity	22	13	16.53 **
Household Income	22	13	3.306 *
Daily Smoking	22	13	2.448 *
Type of Tobacco Smoking	22	13	15.13 **
Marital status	22	13	5.985*
Religion	22	13	5.682*
Class Level	22	13	5.234*

** P < .05   * P> .05

APPENDIX 3   Independent Samples T-Test

Table 3

Independent Samples Test

		Levene's Test for Equality of Variances		t-test for Equality of Means					95% Confidence Interval of the Difference	
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	Lower	Upper
Aware of the lung cancer health concerns	Equal variances assumed	10.444	.002	-1.565	98	.121	-.285	.182	-.646	.076
	Equal variances not assumed			-1.323	45.400	.193	-.285	.215	-.718	.149

Table 3.1   **Group Statistics**

	Tobacco	N	Mean	Std. Deviation	Std. Error Mean
Aware of the lung cancer health concerns	Non-Smokers	36	4.53	1.207	.201
	Smokers	64	4.81	.614	.077

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Table 4   **Paired Samples Statistics**

		Mean	N	Std. Deviation	Std. Error Mean
Pair 1	Students smoke because of depression	2.63	100	1.152	.115
	Students smoke because of dissatisfaction	2.87	100	1.031	.103

Table 4.1   **Paired Samples Correlations**

		N	Correlation	Sig.
Pair 1	Students smoke because of depression & Students smoke because of dissatisfaction	100	.401	.000

Table 4.2

Paired Samples Test

		Paired Differences							
					95% Confidence Interval of the Difference				
		Mean	Std. Deviation	Std. Error Mean	Lower	Upper	t	df	Sig. (2-tailed)
Pair 1	Students smoke because of depression - Students smoke because of dissatisfaction	-.240	1.199	.120	-.478	-.002	-2.002	99	.048

Descriptives

Table 5.1

Students smoke because of depression

	N	Mean	Std. Deviation	Std. Error	95% Confidence Interval for Mean		Minimum	Maximum
					Lower Bound	Upper Bound		
19-21	34	2.35	1.041	.179	1.99	2.72	1	5
24-26	18	2.56	1.097	.258	2.01	3.10	1	4
28-30	3	2.67	1.155	.667	-.20	5.54	2	4
Total	55	2.44	1.050	.142	2.15	2.72	1	5

Test of Homogeneity of Variances

Table 5.2

Students smoke because of depression

Levene Statistic	df1	df2	Sig.
.264	2	52	.769

ANOVA

Table 5.3

Students smoke because of depression

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	.651	2	.326	.288	.751
Within Groups	58.876	52	1.132		
Total	59.527	54			

Multiple Comparisons

Table 5.4   Dependent Variable: Students smoke because of depression

	(I) Age1	(J) Age1	Mean Difference (I-J)	Std. Error	Sig.	95% Confidence Interval	
						Lower Bound	Upper Bound
Scheffe	19-21	24-26	-.203	.310	.809	-.98	.58
		28-30	-.314	.641	.887	-1.93	1.30
	24-26	19-21	.203	.310	.809	-.58	.98
		28-30	-.111	.664	.986	-1.78	1.56
	28-30	19-21	.314	.641	.887	-1.30	1.93
		24-26	.111	.664	.986	-1.56	1.78
Games-Howell	19-21	24-26	-.203	.314	.796	-.97	.57
		28-30	-.314	.690	.897	-3.86	3.23
	24-26	19-21	.203	.314	.796	-.57	.97
		28-30	-.111	.715	.987	-3.38	3.16
	28-30	19-21	.314	.690	.897	-3.23	3.86
		24-26	.111	.715	.987	-3.16	3.38

APPENDIX 6   Multiple Regression Analysis

Table 6.1
Model Summary[b]

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	R Square Change	F Change	df1	df2	Sig. F Change	Durbin-Watson
					Change Statistics					
1	.649[a]	.422	.410	.919	.422	35.410	2	97	.000	2.016

a. Predictors: (Constant), weight, depression

b. Dependent Variable: dissatisfaction

Table 6.2   ANOVA[b]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	44.404	2	22.202	35.410	.000[a]
	Residual	60.869	97	.627		
	Total	105.273	99			

a. Predictors: (Constant), weight, depression

b. Dependent Variable: dissatisfaction

Table 6.3   Coefficients[a]

Model		Unstandardized Coefficients B	Std. Error	Standardized Coefficients Beta	t	Sig.	Correlations Zero-order	Partial	Part	Collinearity Statistics Tolerance	VIF
1	(Constant)	1.606	.258		6.236	.000					
	Depression	.284	.085	.317	3.345	.001	.401	.322	.300	.895	1.118
	Weight	.249	.090	.260	2.750	.007	.363	.269	.246	.895	1.118

a. Dependent Variable: dissatisfaction

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Table 6.4   Collinearity Diagnostics[a]

Model	Dimension	Eigenvalue	Condition Index	Variance Proportions		
				(Constant)	Students smoke because of depression	Students smoke because they want to lose weight
1	1	2.786	1.000	.02	.02	.02
	2	.132	4.597	.08	.29	.93
	3	.082	5.837	.91	.69	.05

a. Dependent Variable: dissatisfaction

Table 6.5   Residuals Statisticsa

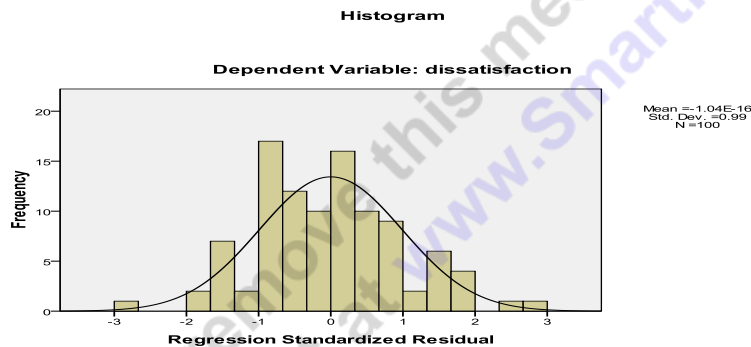|	Minimum	Maximum	Mean	Std. Deviation	N
Predicted Value	2.14	4.27	2.87	.486	100
Residual	-2.453	2.577	.000	.910	100
Std. Predicted Value	-1.505	2.880	.000	1.000	100
Std. Residual	-2.668	2.804	.000	.990	100

a. Dependent Variable: dissatisfaction

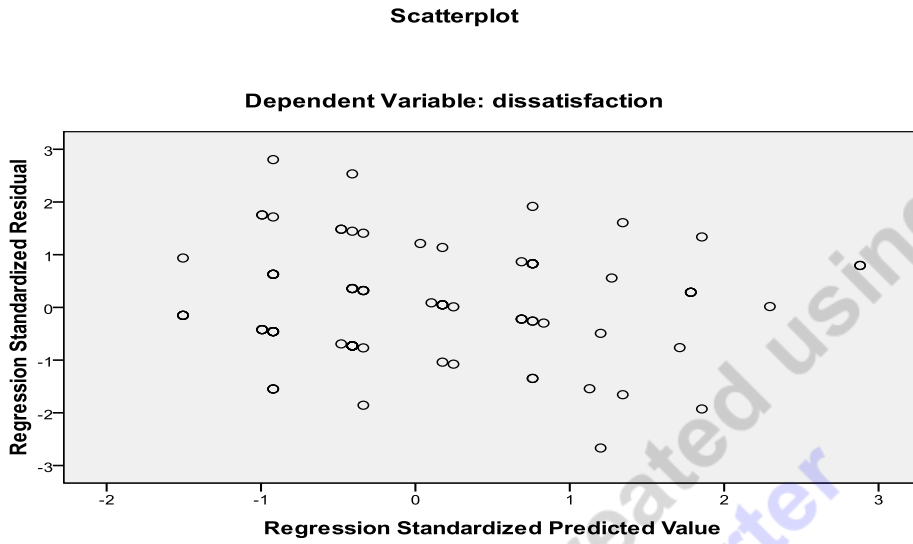**Table 6.6**   Collinearity Diagnosticsa

Model	Dimension	Eigenvalue	Condition Index	Variance Proportions		
				(Constant)	Students smoke because of depression	Students smoke because they want to lose weight
1	1	2.786	1.000	.02	.02	.02
	2	.132	4.597	.08	.29	.93
	3	.082	5.837	.91	.69	.05

a. Dependent Variable: dissatisfaction

Histogram

Dependent Variable: dissatisfaction

Graph 1

Mean =-1.04E-16
Std. Dev. =0.99
N =100

Graph 2

Scatterplot

Dependent Variable: dissatisfaction

APPENDIX 7

Bibliography

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