

DOI: 10.21767/1791-809X.1000584

The Tobacco Landscape: An Urban College Campus Policy Education, Understanding, and Compliance

Michele Montecalvo*, Brother Gregory Cellini, Marlina Reid, Maryanne Santos, Stephanie Thomas, Kathleen Szuhany, Mackline Cezar, Abdul Dosunmu, Ashley Edwards and Shivana Persaud

Department of Biology and Health Promotion, St. Francis College, New York, USA

*Corresponding author: Michele Montecalvo, Department of Biology and Health Promotion, St. Francis College, New York, USA, Tel: 53215318; E-mail: mmontecalvo@sfc.edu

Received date: 06 August 2018; Accepted date: 17 August 2018; Published date: 24 August 2018

Copyright: © 2018 Montecalvo M, et al. This is an open-access article distributed under the terms of the creative commons attribution license, which permits unrestricted use, distribution and reproduction in any medium, provided the original author and source are credited.

Citation: Montecalvo M, Cellini BG, Reid M, Santos M, Thomas S, et al. (2018) The Tobacco Landscape: An Urban College Campus Policy Education, Understanding, and Compliance. Health Sci J Vol.12.No.4:584.

Abstract

PHASE I

Objective: To examine the attitudes, beliefs and knowledge about tobacco among individuals on an urban college campus.

Participants: Urban College based sample of 487 students, faculty, staff/administrator and visitors in Brooklyn Heights, New York.

Methods: The principal investigators recruited participants using an Institutional Review Board exempt pen and paper survey. The participant's responses were transcribed using Microsoft Access and analyzed by the principal investigators to find trends.

Results: The survey data indicated that while some participants (144) were bothered by smoking on campus, most (340) favored the implementation of a designated smoking area. The data was used to gain insight into the attitudes, beliefs and knowledge about smoking on an urban college campus.

Conclusion: The survey data played a key role in the campus administrators' decision-making about campus smoking policy. Despite administrators' concerns regarding campus safety and freedom of choice, the student-led research can be used to influence policy change.

PHASE II

Objective: To examine how students can help college administrators and tobacco control advocates by voicing their opinion about tobacco control policies.

Participants: Urban College based sample of 402 students, faculty, staff/administrator, and visitors in Brooklyn Heights, New York.

Methods: The principal investigators recruited participants using an Institutional Review Board exempt pen and paper survey. The participant's responses were transcribed using Microsoft excel and analyzed by the principal investigators to find trends.

Results: The survey data indicated that some participants (136) have never seen the location of the respectful smoking community and (292) participants were unsure if they received an email regarding the new respectful smoking location.

Conclusion: The survey data played a key role in the campus administrators' decision-making about campus smoking policy. Despite administrators' concerns regarding campus safety and freedom of choice, the student-led research can be used to influence policy change.

Keywords: Urban college campus; Tobacco; Young adults; Tobacco usage; Smoking

Introduction

Background

Despite the commonly known adverse health effects, smoking tobacco use continues to be a major public health concern. This public health concern has prompted a trend of tobacco-free campuses and the installation of numerous programs to ease cessation for the public. Smoking prevalence between particular United States subgroups, mostly college students, has increased 30% throughout the past years [1]. According to the World Health Organization, there are about one billion smokers living in the world and they smoke about six trillion cigarettes yearly. Tobacco causes five million deaths yearly through direct exposure and around 600,000 deaths annually due to second hand smoke. In 2014 an estimated 40 million adults in the United States were smokers, that is nearly 17 of every 100 U.S adults aged 18 years or older. As stated by

the Centers for Disease Control and Prevention, more than 16 million American live with a smoking-related disease. Additionally, men were more likely to smoke than women with nearly 19 of every 100 adult men being current smokers in comparison to the 15 of every 100 adult women (CDC) [1].

“Nicotine exposure during adolescence can cause addiction, might harm brain development, and could lead to sustained tobacco product use among youths”. The number of high school and middle school students reported current use of tobacco products in 2015 to be an estimated 4.7 million. If the rates of current smokers continue, 5.6 million Americans less than 18 years’ old who are alive today are projected to die prematurely from smoking-related disease. Adolescence is a critical period for brain development. Therefore, nicotine exposure can cause addiction, harm brain development and could lead to sustained tobacco product use among youths [2]. Alcohol and tobacco use affects both old and young populations, it is posited that occurrence in younger populations can show unique and negative outcomes. For example, the usage of alcohol and tobacco before the age of fourteen years has been linked to increased risk of school dropout, higher risk for assault, increased risk of suicide and alcohol poisoning, a higher likelihood of developing behavioral or mental health issues along with numerous other short and long-term negative outcomes and past research has shown an increase in cigarette smoking [3].

The Healthy People 2020 initiative currently aims to “reduce illness, disability and death related to tobacco use and secondhand smoke exposure”. Illnesses related to smoking in the United States costs more than \$300 billion each year – \$170 billion for direct medical care for adults and more than \$156 billion in lost productivity. Effective strategies to reduce smoking as identified by research according the Healthy People initiatives included but are not limited to enacting comprehensive smoke-free policies, expanding cessation treatment in clinical care settings and providing access to proven cessation treatments and controlling access to tobacco products. Tobacco not only harms the user but also those who are exposed to secondhand smoke; 2.5 million deaths as a result of diseases caused by secondhand smoke exposure have occurred since 1964. For example, infants and children exposed to secondhand smoke are more prone to severe asthma attacks, respiratory infections, ear infections, and sudden infant death syndrome. (Healthy People) [4].

According to the Centers for Disease Control and Prevention, there is a direct correlation between smoking cigarettes and eleven different kinds of cancer; these types of cancer include: Acute myeloid leukemia, bladder cancer and cervical cancer, cancer of the esophagus, kidney cancer, cancer of the pharynx and stomach cancer. One of the most concerning ingredients in cigarettes and other tobacco products is nicotine. Nicotine is a highly addictive substance that is contained in many tobacco products. Nicotine is a chemical that when is in the blood stream can make a person’s mood boost, and may even relieve minor depression [5]. Nicotine, however, leads to many adverse side effects, such as an increase in heart rate by 10 to 20 beats per minute, or an

increase in blood pressure by 5 to 10 millimeters of mercury [5]. An immediate effect on the heart and the cardiopulmonary system as a result of nicotine, and long term use can lead to damage if used and ingested on a regular basis.

As an alternative to cigarettes many young adults have turned to using e-cigarettes. Though, studies demonstrate that e-cigarettes and vapor contains toxic and carcinogenic compounds; thus, this, vapor is not entirely harmless. Nevertheless, the levels of toxins seem to be less than those of combustible cigarettes, an observation that varies with device design and voltage [6]. Drummond states that 42.1 million U.S. adults currently smoke combustible cigarettes. Although approximately 70% of U.S. daily combustible smokers express a desire to quit, fewer than 50% will attempt to quit, with sustained cessation after quit attempts ranging from 5% to an optimistic 30% [6]. Exposure to tobacco harms nearly every organ of the body. The leading source of preventable morbidity and premature mortality, the third leading cause of death in the United States can be attributed to cigarette smoking, which is also responsible for one in five deaths [7]. Young adults smoke at higher rates than any other age group due to the tobacco industry predominately targeting young adults. As a result of lack of comprehensive bans on smoking on college campuses students are exposed to secondhand smoke [7]. “The negative health effects and reduced quality of life associated with first and second hand smoke exposure has been well documented” [8].

College smoke-free policies indicated a reduction in student smoking rates from previous research [9]. One third of college students have ever smoked cigarettes and one sixth are current users. Smoking policies to allow smoking in designated areas has been instituted by many college campuses in the hopes of discouraging smoking by making it inconvenient and also to protect non-smokers of secondhand smoke [10]. It has been reported that approximately 18% of college students were current smokers. Most teens in the United States smoke with cigarette and e-cigarettes. Many public service announcements try to inform students of the risk factors and try to inform students of ways he/she can prevent the issues [11]. Cigarette smokers have demonstrated lower self-reported mental function than nonsmokers as well the exhibition of higher levels of anxiety or depressive symptoms and a higher incidence of depression. Students during their college years have frequently reported problems such as depression, anxiety, poor sleep, and high levels of perceived stress where 30% of college students report that they have been too depressed to function over the past year [10].

“The Center for Disease control’s report shows 31.5% of American Indians/Alaska Natives, 20.6% of whites, 19.4% of blacks, 12.9% of Hispanics, and 9.9% of Asians are current smokers”. Reports show the United States Surgeon General on tobacco use found that Hispanic and white high school students demonstrated a smoking prevalence of 19.2% and 19.4%. It was double the amount of African American high school students [8]. Reports continue to reveal that approximately 18% of college students were current smokers. For example, individuals that indicated smoking in the last 30

days. Berg et al. found that many individuals began smoking in college, despite exposure to health warnings. As a result, policies prohibiting smoking or creating tobacco-free college campuses have increased in recent years [11].

In the article, College Student Reaction to Smoking Bans in Public on Campus and At Home examines student reactions to smoke free policies. Smoking initiation often starts at a young age [12]. College students experiment with tobacco use and become addicted to its various products. During college, many people experiment with or initiate smoking and one third become addicted [12]. This addiction leads to frequent Tobacco use and exposure to its negative effects. Smoking initiation not only affects the smoker but the population who is exposed to it. Second hand smoke causes many health risks and poses a threat to the community. It is important to examine college student's reactions to smoke free policies in public places and on campuses as well as the practice of implementing private restrictions [12]. Legislation against tobacco use is created to limit the dangers associated second hand smoke exposure. Smoke free policies are being implemented in various campuses within the United States. Used online surveys to examine reactions to these policies [12].

Cigarette smoking is the leading preventable cause of morbidity and mortality in the United States. Although the overall prevalence of smoking has declined since 1991, the rate among young American youth has risen since 1992 [13]. In fact, young college students have the highest rate of new smokers. Approximately 28% of college students smoke cigarettes and nearly one third of them started smoking after age 19, suggesting that early college might be the highest opportune time to impact smoking behaviors [13].

There is a higher prevalence of smoking among college students, which poses a particular concern when smoking rates go down, but college student's rates persist. Multiple organizations suggest enacting strict tobacco control policies [14]. The American Cancer Society recommends that all campus buildings restrict smoking to a minimum of 20 feet from the building or air intakes and implementing tobacco cessation programs. There is a lack of research on whether tobacco policies reduce smoking rates on campus communities. There is a possibility that these policies could have a negative effect on students if it elicits a negative response from the population [14]. Insight on which policies have a more positive effect on the population would be beneficial to the colleges and their population.

On United States college campuses, student identification cards are now developed with the ability to put campus cash onto the card, which is converted into a debit card. This card can be used to purchase goods and service at various university-affiliated stores on campus and off campus. In a prior study, it showed that 42% of the surveyed students used their student identification card to purchase cigarettes. This founding had lead campuses and student identification card with financial abilities to purchase e-cigarettes is a growing problem, to develop policies about tobacco and e-cigarettes at major American Universities [15].

Determinants of smoking among college students are largely unknown [16]. Examining the role of theoretically derived psychosocial and behavioral protective factors and risk factors in smoking involvement among college students.

The study surveyed 1,309 students from eight California campuses. Exposure to second-hand smoke was highest on campuses with no campus-wide smoking policy. Intention to smoke on campus was the lowest on tobacco-free campuses compared to campuses with a no-smoking policy. Results of the study showed high compliance with tobacco policies and greater effects on protecting others from second-hand smoke exposure. This study supports the success of tobacco-free policies on college campuses [17].

There has been so much progress made in reducing the prevalence of heavy cigarette smoking among adults under the age of 25. Both non-daily and light smoking rates have dramatically risen. This increase is partially explained due to the flavored products such as hookah tobacco [18]. A survey conducted by American College Health Association (ACHA) in 2012 revealed that 30% of college students have smoked hookah tobacco at least once. This is also a result of the fact that warning labels on hookah products are lacking.

Explains that outdoor smoke free policies have two primary concerns [19]. The first is changing social norms around tobacco and reducing its use. The second concern is to avoid exposure to second hand smoke. Implementing policies that restrict the use of smoking can have a positive effect against smoking initiation. There were studies of the difficulty of smoking in a park setting among young adults that are living in areas with and without smoke free policies [19].

Older students, women, and students further in their college career were more likely to support smoke-free campus policy [20].

The tobacco industry has strategic marketing techniques, which targets people from the age of 18 to 24 years, which can be college students. Smoking marketing may contribute to college student smoking behavior, which can be found in events, parties, and promotions [21]. Students have been reporting lower smoking rates that live in a college resident hall with a no smoking policy. Students can help college administrators and tobacco control advocates by voicing their opinion about tobacco control policies.

The prevalence of smoke-free policies is increasing as schools, hospitals, and universities are becoming more concerned with smoking near campus property. The tobacco industry targets college students while they are in a time of transition and vulnerability [22]. College campuses are using these policies to protect students and faculty from second-hand smoke. Assessment is necessary for smoking on campuses with no or partial restrictions than on campuses with 100% smoke-free policies [22].

Initiating smoke free policies on campus grounds offers several benefits to Universities. Costs of clean up can decrease and in turn increase the appearance as an appealing option for incoming consumers. Enforcing such policies also assist in

encouraging existing smokers to quit, limiting distractions and increasing the likelihood of healthy habits [23].

There has been a growth in the availability, marketing, sales and use of electronic nicotine products, which is known as e-cigarettes. The e-cigarette market is approximately a 2.5-billion-dollar industry. During 2012-2013, National Adult Tobacco Survey showed that young adults aged 18 to 24 years had a higher prevalence of e-cigarette use than the adult population [24]. There are limited studies about e-cigarette use. Studies found that there are no associations between e-cigarette use and quitting cigarettes or an association with lower odds of quitting cigarettes.

Health hazards affiliated with tobacco use has caused smoke free policies to emerge which protects the public from smoke exposure in indoor and outdoor settings. Smoking no longer holds the glamour that it once held in the past and a movement to restrict its use has become a social norm. In social and occasional smoking behavior, the denormalization of tobacco use in western nations has led to declines in both smoking and its public acceptability [25]. Knowledge of the effects of tobacco can be used as a deterrent for smoking initiation. "Even with overall reductions in smoking, tobacco use remains the leading cause of preventable illness, in the death in the United States [25]. Even with Tobacco control programs and policies tobacco use is still prevalent in the adult community.

The stages of change

The study of smoking on an urban college campus displays the stages of change theory. Many of the individuals who reported being a smoker on the survey did not report thoughts on changing their smoking habit while others displayed an interest in cessation. This pre-contemplation revealed a reluctance stating that the act of quitting smoking is solely up to the smoker and that they are not willing to quit regardless of the available support mechanisms available to them. In this stage the smoker is reluctant, rebellious, resigned, and rationalizing to their behavior. Although there were participants who did not see an issue in their behavior, there were participants who expressed their desire to eventually quit. This stage is known as the contemplation stage where the smoker is at least willing to consider the possibility they have a problem or addiction and are willing to make changes.

Those who are past the contemplation stage and are committed to taking action is in the determination stage. Which is, the smoker wants to quit and is committed to finding the best way for them to do so. Once the smoker finds a treatment option that would be beneficial to them in their smoking cessation process then they move on to the action stage where they implement their plan such as starting the patches or lozenges, etc. Changing one's behavior or addiction requires time and successful behavioral change occurs as a result of maintenance. Maintenance occurs when smoking cessation is remains long term and the urge to relapse becomes less intense and less frequent. Termination is the ultimate goal in the change process and is achieved when the temptation of a cigarette no longer poses a threat [26].

Community/organizing theory

The community organization model was utilized as a tool for the study in order to gain a better understanding of smoking tobacco prevalence in this particular urban college population as well as its impact on not just smokers but bystanders. The study of knowledge, attitudes and beliefs of individuals in regards to smoking tobacco provided focus on a specific issue that individuals are exposed to. In doing so, the principle investigators were engaged with various groups and organizations on the campus with the goal of developing and maintaining a capacity and power to produce lasting change that would influence the lives of individuals on the campus. The study was set up and implemented for the principal investigators and campus administrators to better grasp the context and root causes of individuals who smoke and how it is affecting their lives as well as other campus bodies. The study also allows an option to assign a designated smoking area on campus so that no one person feels like their voice is not being heard or that they are being shunned. Campus administrators and the principal investigators administered this study with the intent of gaining input from every individual on campus to make a collaborative decision that would solve an issue [27].

Methods

Participants and recruitment

Recruitment occurred on an urban college campus setting in Brooklyn Heights, New York from November 2015 to February 2016. Participants (n=487) were recruited on an urban college campus through an Institutional Review Board exempt pen and paper survey. The study included participants who were students, faculty, staff/administrators or visitors. Participants were recruited during different social campus events such as the Great American Smoke Out, a Graduate School Fair, the Healthy Habits Fair, classrooms, hallways, study hall, and library and computer labs. The inclusion criteria for this study included: 1) being 18 years of age and older; 2) English speaking; and 3) present on the urban college campus. The authors recruited people through snowball recruitment effect by asking participants to input their attitudes, knowledge and beliefs in regards to smoking on campus by computing the pen and paper survey. The research aims of the study were to provide the information that would allow an understanding of one's attitudes, and beliefs about smoking on a campus as well as how their attitudes and beliefs are affected by their knowledge. The decision of whether or not a designated smoking area should be included on campus was influenced by the data of the survey.

The principal investigators approached participants while present on campus and introduced themselves as senior students in the Healthcare Management program who were conducting an investigation on the knowledge, attitudes and beliefs regarding smoking on campus. The research facilitators explained that their research aim is to include all groups on campus in order to eliminate bias towards smoking on campus. Participants were informed that their input might influence

whether or not a designated smoking area would be implemented on campus. Additionally, participants were informed that their inclusion in the study was completely consensual and that they have the right to refuse to participate. If and when an individual agreed to participate, they were asked to check and date the consent check box. They were also assured that their participation was strictly confidential and they did not need to identify themselves on their surveys. The willingness of one participant often prompted participation from those around them as well.

The population of this work includes students, faculty, staff, and administration that all are either attending or working for this small urban based college (N=402). For this pen and paper survey, (N=402) participants were randomly asked to complete the study. Of these (N=402) participants, three hundred and fifty were students; forty-four are administrators, faculty or staff and six listed as other. Of our (N=402) participants, forty-six of these will consist of smokers. This survey is considered a convenience sampling since our participants do attend or work at the same college in which we are doing this study. This is both a quantitative and qualitative research study. This study recruitment was conducted for ninety days.

This is a seven to ten minute survey, in which participants were asked to answer some demographic questions, (including age, gender, race, residency and relationship to the school.) There are standard set of questions that are asked to our participants. For example, overall experience with the past and current smoking policies of the school, awareness of smoking implementation and opinions of smoking areas. Within these questions, there are fourteen multiple-choice questions and four open-ended questions. These questions were based on communication awareness and environmental changes. In addition, for smokers, there are ten more multiple-choice behavioral questions.

Data Collection

Participants received Institutional Review Board exempt survey questions, which explained the study along with the name, and contact information of one of the principle investigators for future inquires. The survey did not ask participants to identify themselves and required at least 7-10 minutes to be completed. The principle investigators facilitated pen and paper surveys on urban college campus areas such as hallways, library, computer labs, lounges, cafeterias, classrooms, offices and campus events such as the Great American Smoke Out, college fair and graduate school fair. Participants were made aware that the results of the survey would influence the campus' decision on whether or not a designated smoking area will be implemented on the urban college campus. The survey consisted of multiple choice questions and open-ended questions. Each survey was transcribed and analyzed by the principle investigators using Microsoft Access. All principle investigators involved in the research study to ensure accuracy also reviewed the data retrieved from each survey.

Participants were approached by the principal investigators and kindly asked to complete the survey. The survey was introduced as an outlet to collect student input on the current smoking status on campus and their attitudes, beliefs and knowledge about it. They were also informed that their input would be used to aid campus officials in deciding whether or not a designated smoking area should be implemented on campus. The research facilitators encountered participants who were reluctant to taking the survey since they were current smokers. In such a situation, participants were assured that whether or not they are a smoker their input is very important to the researchers as well as campus officials. Participants were more willing to engage in the survey when they learned about the goals of the research and what might result from their responses.

Age of participants

Participants ranged in ages 18 to 75. The mean age was 18-24 with 82.34% from 331 of (N=402) participants.

Gender: Participants ranged were divided with 216 female 45.25 male (181) with 3 participants out of binary (N=400).

Race: Participants N=401- 1= (400) responded with the following racial demographics white 36.41 from 114, Black 28.43 from 114 , Hispanic 23.19 from 93, Asian 6.73 from 27 Native American. 50% from 2, Pacific Islander. 50% from 2, Unspecified (14).

Residency of Participants: Participants resided in the majority of the 3 states: New York 3.99% from 17, NJ 3.24% from 13, Connecticut 0.25% from 1, reported our residency in New York City within the 5 boroughs 92.09% from 369 (N=401).

Relationship to School: Participants were asked relationship school respondent reported, students 88.61% from 350 and number campus employee (faculty, staff, and administration) 11.39% from 45 (N=400 - 6=395).

Receiving Email

Participants were asked if they received email communication: No (77.83% from 308 out of 397) yes (22.17% from 88 out of 397)

Understanding Email

Participants were asked to recall the email communication and then had an opportunity to reread highlights of the policy. Out of the respondents (N=398), 93.22% (371 out of 398) understood the highlights of the policy and 6.78% (27) did not understand the highlights.

A. Location of respectful smoking area: Participants (N=393) were asked if they knew where the location of a sign representing a smoke friendly area. 68.19% (268 out of 393) incorrectly recalled the location of the sign and 31.81% (125 out of 393) correctly recalled the location of the sign.

B. Participants (N=386) were asked if they knew where the location of a sign representing a smoke free area. 92.74% (358 out of 386) incorrectly recalled the location of the sign and 7.25% (28 out of 386) correctly recalled the location of the sign.

Actively look for designated smoking signs

Participants (N=401) were asked if they actively looked for designated smoking signs. 93.77% (376) out of (N=401) do not look for signs. 6.23% (25) out of (N=401) actively look of designated smoking signs.

Actively look for non-smoking signs

Participants (N=397) were asked if they actively looked for non-smoking signs. 90.68% (360) out of (N=397) do not look for signs. 9.32% (37) out of (N=397) do look for signs.

Agree with the respectful smoking community

Participants (N=396) were asked if they agree with the location of the smoke friendly community. 80.05% (317) out of (N=396) agreed with the location and 19.95% (79) out of (N=396) did not agree with the location.

Safety in the smoking area

Participants (N=390) were asked if they felt safe in the smoke friendly area. 85.38% (333) out of (N=390) did feel safe in the smoke friendly area and 14.62% (57) out of (N=390) do not feel safe in the smoke friendly area.

Aware of negative effects of cigarette butts

Participants (N=391) were asked if they were aware of the negative effects of cigarette butts. 61.13% (239) out of (N=391) were not aware of the negative effects of cigarette butts. 38.87% (152) were aware of the negative effects of cigarette butts.

Short answer

Participants (N=396) were asked if they were a smoker or no smoker based on a definition given in the survey. 88.38% (350) labeled themselves as a non-smoker and 11.62% (46) labeled themselves as smokers.

Started using tobacco

Participants (N=46) that smoke were asked when did they start using tobacco products. 56.52% (26) started using tobacco in high school, 21.74% (10) started using tobacco in college, 15.22% (7) started using tobacco in junior high and 6.52% (3) did not disclose.

Duration of smoking

Participants (N=46) that smoke were asked how long they have been using tobacco products. 69.57% (32) have been

using tobacco for over 2 years, 15.22% (7) have been smoking for 1 to 2 years, 8.70% (4) have been smoking for 6 to 12 months and 6.52% (3) have been smoking for less than 6 months.

Tobacco products used

Participants (N=46) were asked what kind of tobacco products used. 50% (23) use multiple tobacco products, 45.65% (21) use only cigarettes, 2.17% (1) use only vape, 2.17% (1) did not disclose what they use.

Money spent on tobacco products

Participants (N=46) were asked how much they spent on tobacco products. 50% (23) spend less than \$50, 23.91% (11) spend \$51-100, 17.39% (8) spend \$101-150, and 8.70% (4) spend over \$150 a month on tobacco products.

ADA policy

Participants (N=45) were asked if they were aware of the ADA rules and regulations. 66.67% (30) said that they were aware of the ADA rules and regulations and 33.33% (15) said that they were no aware.

Popular smoking areas

Participants (N=46) were asked where they smoke on campus. 43.4% (20) smoke in an area that is considered a non-smoking area, 39.14% (18) smoke in an undisclosed area or multiple areas and 17.39% (8) smoke in an area that is considered smoke friendly.

Daily use of respectful smoking community

Participants (N=45) were asked how often they use the smoke friendly community. 55.56% (25) never use the smoke friendly community, 44.44% (20) use the smoke friendly community at least once a day.

Increased knowledge of smoking community

Participants (N=45) were asked if knowledge of the policy will encourage them to use the smoke friendly community. 54.35% (25) said that knowledge of the policy will encourage them to use the smoke friendly community and 43.48% (20) said that they will not use the smoking area regardless of the information given.

Quitting smoking?

Participants (N=44) were asked if they desire to quit smoking or not. 65.91% (29) do not want to quit tobacco use and 34.09% (15) did desire to quit using tobacco.

Resources of reduction tools

Participants (N=45) were asked if they wanted reduction tools on campus. 60% (27) did not want reduction tools and 40% (18) did want reduction tools.

Participants that wanted reduction tools were asked what type of tools they wanted available on campus. 44.44% (8) wanted to see multiple tobacco reduction tools on campus, 22.22% (4) wanted to have support groups, 16.67% (3) wanted patches, 11.11% (2) wanted educational materials and 5.56% (1) wanted Nicotine gum.

Qualitative answers

Why people think it is unsafe

- People will disregard=5
- Disagreement of location=35
- Useless=2
- Right to Smoke=1
- Enforcement=1
- Indifference=2
- Health related=10
- Antismoking=4
- Prosmoking=7
- Emotional=1

Suggestions on ways to improve smoking community

- Change location=32
- Change signage=18
- Additions to area=10
- Increase Enforcement=10
- No Smoking at all=10
- Smoke Anywhere=8
- More respect=4
- Agree with policy=4
- Security=3
- Change Benches/Windows=2
- Communication=1
- Confinement=1
- Sidewalk=1
- Never thought about it=1

If you had negative effects in the area, please explain

- Health Related=11
- Anti -Smoking=1
- Environmental Effects=6
- Safety Concerns=3
- Non Adherence to Policy=5
- Judged=1
- Location=2
- N/A=7
- Not related=1
- enforcement=2

Consequences if policy is not followed

- Ask to Move=21
- Ban from Smoking=10
- Community Service=6
- Don't Know=11
- Expulsion=11
- Fine=16
- Health Education=5
- Mark on Student profile=5
- Mix of Consequences=9
- None=32
- Not sure but Repercussions=7
- Nothing, Faulty Policy=3
- Police Intervention=5
- Remove the Smoking Areas=4
- Revoke Scholarship=1
- Staff should Not Interfere=3
- Students pay tuition, No Consequences=3
- Suspension=11
- Talk with Faculty/Dean of Policy=20
- Warnings leading to Consequences=37

Enforcement of the policy

- Add Security Measures: 36
- Better Enforcement: 30
- Better Signs: 17
- Change Location: 9
- Less Smoking/ Reduce Smoking on Campus: 25
- Fine: 17
- Old Ways: 5
- Current Policy: 15
- Move Benches: 4
- Awareness: 11
- Cooperation: 4
- Make Safe: 1
- Respect: 2
- Protest: 1

Measures

Our outcome variables included various cigarette smoking-related behaviors and attitudes. We measured the impact of smoking on campus (yes/no); family members smoke (yes/no); current use of tobacco (yes/no); should the campus designate a smoking area on campus (yes/no); and placement of designated area. We analyzed trends in the open-ended questions to establish beliefs: what is the impact of smoking on campus and what is an effective way to help people stop smoking. Knowledge based questions pertained to the borough of Brooklyn. These questions included: number of smokers living in Brooklyn (dichotomized from number of residents who currently smoker, which had 3 response options – 89,000; 124,000; 276,000); what is included in the New York State Clean Indoor Act; health risks associated with secondhand smoke (5 response options – Stroke; Heart Attack; Asthma; Middle ear infection; all of the above); daily spending

of big tobacco companies (4 response options \$50,000; \$500,000; \$1,000,000; \$10,000,000); vaping and/or e-cigarettes are safe to use (true/false); and vaping and/or e-cigarettes are a good way to stop smoking (true/false).

We used several control variables including: age (categorical measure: under 18; 18-21; 22-24; 25-34; 35-44; 45-54; 55-64; 65-74; and 75 and older); sex (male; female; transgender; and gender non-conforming); campus affiliation (student; faculty; staff/administrator; visitor); and Ethnicity.

Analysis

The principal investigators reviewed the data entries with the corresponding paper surveys to ensure content accuracy. Themes emerged regarding smoking, which influenced the knowledge, attitudes and beliefs of campus bodies and whether or not a designated smoking area should be implemented. Data entry and associations of the surveys were organized using Microsoft Access, with subsequent analysis performed by each of the principal investigators. The principal investigators believed Microsoft Access would allow the pulling of specific data such as age range, campus affiliation, attitudes regarding designated area implementation.

Results and Discussion

Demographics

We surveyed a total of 487 students from an urban college campus in Brooklyn Heights, New York. The majority of respondents were male (256) in comparison to female (222), transgender (3), and gender non-conforming (3), however, respondents also included individuals (3) who did not report their gender. There were significant differences among ethnic groups who participated in the survey in comparison to White/Caucasian/European Americans being more prevalent (135) and Native Hawaiian/Pacific Islander being the least prevalent (1). Although there was a significant difference between White/Caucasian/European Americans and Native Hawaiian/Pacific Islander participants, the survey displayed diversity in that Black/African American (129), Hispanic/Latino (69), Asian (27), and American Indian/Alaska Native (10), Arab American/Middle Eastern (8), and other/mixed (40) groups also participated along with (37) participants who did not disclose their ethnicity.

The research surveys represented a wide range of individuals such as Student (434), Faculty (10), Staff/Administrator (33), Visitor (4), as well as individuals that did not report (4) their affiliation with the campus. The ages of participants ranged from under 18 years old (2), 18 to 21 years old (317), 22 to 24 years old (84), 25 to 34 years old (36), 35 to 44 years old (17), 45 to 54 years old (6), 55 to 64 years old (10), 65 to 74 years old (3), 75 years or older (2) and those who did not report their age (7) (**Table 1**).

Participants (233) were open with their attitudes, knowledge and beliefs about smoking on campus. When asked whether tobacco use on campus impacted them 144 out

of the 487 respondents answered yes. Participants noted that the smoke present on campus affected their breathing, subjecting them to secondhand smoking as a result of having to walk through the smoke to get to the entrance. One individual stated "I go out of my way to avoid smokers outside of school and try to hold my breath in a supposedly "smoke free zone" (survey #124). Another individual used a stat to explain the impact it has on him, "smoke affect 30% more those that don't smoke compare to those that smoke" (survey #143). A common trend among individuals who stated the impact smoking on campus has on them is secondhand smoking and the affects it has on conditions such as asthma and allergies. Participant 289 stated, "I was diagnosed with asthma but I suffer with hay fever. Cigarette smoke makes me breathe heavy".

When asked whether or not a designated area should be implemented on campus grounds 340 participants answered yes. The 340 participants included Students (306), Staff/Administrators (21), Faculty (7) and Visitor (3) and did not report (1). The group of participants who supported the idea of implementing a designated area also included individuals who considered them to be both Faculty and Staff/Administrator (2).

The trends in comments regarding smoking on campus included participants who supported the implementation of a designated smoking area in order to avoid nonsmokers from being bothered by the smoke. However, others were against the designated smoking area stating that smoking should be banned and not allowed to take place on campus. Secondhand smoke was referred to as an action that is unavoidable when smoking in an open area where nonsmokers are present. Some addressed the distractions that result from the smoking that is going on around them. Participants also referred to the smoke-free signs that are displayed on the urban college campus as false advertising since smoking on campus has become normal. It was also suggested that the campus although smoking is the smoker's decision the campus should provide education on smoking cessation. One participant stated, "Smoking cessation classes should be part of the curriculum" (survey #42).

The survey revealed that some participants currently (62) or do not smoke (409) while others smoked at least once in a while. Some participants smoked every day at least 1 to 2 cigarettes a day or as much as 10 cigarettes a day. While there are active smokers on campus, smokers identified themselves as smoking every day, every other day, once a week, every other week special occasions or as specific as every 50 minutes. Smokers either identified their smoking behavior by how often they smoke the amount of cigarettes they smoke, or the number of packs they smoke. When asked about their family members 179 participants stated that they have family members who smoke while 238 participants stated that they did not. Family members who were reported to be smokers included immediate family members: mom (12), dad (18), brother (4), sister (2) and extended family members: uncle (13), aunt (5), grandfather (4), grandmother (2), step-father (1), and sister's fiancé (1). In order to identify smoking

behaviors participants were asked about the frequency of smoking exhibited by their family members. Family members were identified as either smoking 1-2 packs a day (10 participants) or smoking at least 3-5 times a day (12) while 124 participants stated that they did not know the amount their family member smokes.

Table 1 Demographics characteristics of sample (N=487).

Gender	N	%
Male	256	0.526
Female	222	45.7
Transgender	3	0.6
Gender non-conforming	3	0.6
Did not report	3	0.6
		Total=487
Campus affiliation		
Student	434	89.1
Faculty	10	2.1
Staff/administrator	33	0.8
Visitor	4	1
Faculty staff administrator	2	0.4
Did not report	4	1
		Total=487
Self-identified ethnicity		
white/Caucasian/European/American	135	27.7
Black/African American	131	26.5
Hispanic/latino	69	14.2
Asian	27	5.5
American Indian/Alaska Native	10	2.1
Native Hawaiaian/Pacific Islander	1	0.21
Arab American/Middle Eastern	8	1.6
Other/mixed	68	8.2
Did not report	38	7.6
		Total=487
Age range		
Under 18 years old	2	0.4
18 to 21 years old	317	65.1
22 to 24 years old	87	17.9
25 to 34 years old	36	7.4
35 to 44 years old	17	3.5
45 to 54 years old	6	1.2
55 to 64 years old	10	2.1
65 to 74 years old	3	0.6

75 years or older	2	0.4
Did not report	7	1.4
		Total=487

Participants made suggestions as to what may be effective alternatives to help people quit smoking. This included the belief that there should be a ban of cigarette sales, educating smokers on the risks associated with tobacco, using smoking cessation aids such as patches, support from friends and family members and even therapy. A significant amount of participants suggested that smokers should pick another habit or interest to distract them from the need of smoking. Faculty responses towards effective suggestions for smoking cessation noted education, positive support and price deterrents (i.e., higher tobacco costs and taxes). One respondent noted "Teach them healthier ways to deal with stress, most smokers I know smoke because of stress". Student responses towards effective suggestions for smoking cessation included three trending areas; education, showing harms and vaping.

Education was noted by several students, "reminding smokers of the physical changes to the body could be a good influence to motivate smoking less or not at all". Education was suggested in the form of knowledge for young children, seminars for current smokers and the educational influence of former smokers. A high majority of college age students (both smokers and non-smokers) responded that implementing programs with former smokers to share their experience had a perceived high influence level. Notably, "showing harms" was reported by several respondents, reflecting on the influence of PSA's and visual imagery in areas of smoking activity. Scare tactics have been reported by researchers as an ineffective method for substance abuse [27]. The tertiary effectiveness tool suggested by college age respondents in this survey research was vaping. Noting the overall popularity, seemingly little education on the dangers of vaping known to the general public and with little - if no public health policy in place at this time. Vaping was noted with anecdotal positive effects of withdrawal and social benefits due to the lack of smell and ease of use (Table 2).

In addition to what the participants believed and their attitudes about the present smoking status on campus, they were also asked knowledge questions so that researchers could see what they really knew about the product. When asked about the tobacco products included in the New York State Clean Indoor Act 271 of the 487 participants answered the question correctly stating that cigarettes, cigars, e-cigs, vaporizers, hookah, & any other smoke product were included in the act. However, 106 participants believed that cigarettes and cigars were the only products included in the New York State Clean Air Act whereas 89 participants believed that cigarettes, cigars, e-cigs, and vaporizers were the only products included in the act [28-32].

It is known that smoking poses a health risk but how many people knew what health risks are associated with secondhand smoke? The truth of the matter is that asthma, heart attack, middle ear infections and stroke are all health related risks

that are associated with secondhand smoke and 82 participants agree. However, others think that secondhand smoke is only associated with either asthma (41); heart attacks (1); asthma and middle ear infection (2); asthma and heart attacks (2); asthma, heart attacks and middle ear infections (1); asthma, heart attacks, and stroke (1); middle ear infection (1); stroke (3); stroke and asthma (2); and asthma, heart attacks, and stroke (21) and participants who did not answer (9). Additionally, a true or false question stated that vaping and e-cigs were safe to use and 86 participants agreed that the statement was true whereas 401 participants disagreed in the statements validity. Similarly, 122 participants identified the statement "vaping and e-cigs are a good way to stop smoking regular cigarettes" as true but 279 participants believed the statement to be false.

Table 2 Knowledge based questions of samples (N=487).

Campus allows smoking in the following places	N	%
Indoors	1	1
Side walk area outside building	454	93.2
Entryways	10	2.1
Greenhouse	3	1
Did not report	9	3.3
Total=487		
The number of smokers living in Brooklyn		
89,000	49	10.1
1,24,000	201	41.3
2,76,000	219	45
Did not report	18	3.7
Total=487		
The New York state clean indoor air act includes the following		
Cigarettes and Cigars	106	21.8
Cigarettes, Cigars, e-cigs and vaporizers	89	18.3
Cigarettes, Cigars, e-cigs, vaporizers, hookah and any other smoked product	271	55.6
Did not report	21	4.3
Total=487		
Do you currently use tobacco		
Yes	78	16
No	409	84
Total=487		
Big tobacco spends \$ per day in New York state alone		
\$50,000	28	5.7
\$500,000	93	19.1
\$1,000,000	186	38.2
\$10,000,000	166	34.1

Did not report	14	2.9
Total=487		
Vaping and/or e-cigs are safe to use		
True	86	17.7
False	401	82.3
Total=487		
Vaping and/or e-cigs are a good way to stop smoking regular cigarettes		
True	198	40.7
False	289	59.3
Total=487		
If you had access to patches, gum, lozenges (or other nicotine alternatives) would you feel encouraged to quit?		
Yes	251	52
No	236	48.5
Total=487		

Comments

The results from the study reveal the variety of reactions from students, faculty/administrators, staff, and visitors of the urban college campus. The findings of this study include groups of student, faculty/administrators, staff and visitors who either participated or witnessed individuals smoking tobacco on campus. Some participants stated that smoking on campus did not impact them while others wanted to implement rules and regulations that either isolated or banned smoking on the campus. Many associated smoking tobaccos on campus with secondhand smoke.

The study was facilitated with the intent to understand smoking behaviors and the knowledge, attitudes and beliefs associated with smoking. Smoking behaviors on the urban college campus included the use of cigarettes, e-cigarettes and vaporizers. Since vaping is believed by some to be a healthier alternative to smoking the campus has seen an up rise in usage. Influencing a change in campus policy regarding smoking would not only limit the amount of smoke exposure to bystanders but also refrain from making vaporizer and e-cigarette users feel like they are being ostracized. Influencing a policy change on campus through the use of a research study was meant to give everyone the equal opportunity of having their voices heard in regards to their environment and behaviors around them.

Limitations

The limitations that occurred when conducting the study included a lack of faculty participation when compared to student participation. Faculty members on the urban college campus stated a lack of free time to fill out the survey. The survey was only available in English, which resulted in non-English speaking individuals not being able to participate in the research project; as well as not including the few students who may not have yet reached the age of 18. Also, surveys were

limited to one urban college campus in Brooklyn Heights and strictly represented the knowledge, attitudes, and beliefs of individuals who were present on a particular urban college setting. In regards to the makeup of the survey, questions that were difficult to categorize included how often do you smoke and your zip code since they were open ended, which resulted in a variety of different responses. Additionally, we did not use the federally coded race/ethnicity question, which resulted in multiple ways of representing one group. Another limitation included majority of knowledge-based questions were left blank.

After inputting the data, our study showed that there is a lack of age diversity. Since there is a much smaller amount of faculty and staff that completed the survey, the age group of most of the surveys was the same, which was coming from students aged 18-24. A second limitation that this study faces is that the only population of participants is strictly within a small urban-based campus. This peer-to-peer relationship made it easier for us to interact with students. The availability was much higher with students compared to faculty, staff and administration. Another limitation was that smokers had much more detailed open-ended answers, while non-smokers didn't give as much insight or details. From this, researchers were able to tell right away that there is an imbalance between smokers and non-smokers. The amount of smokers that participated in our survey was minimal compared to the amount of non-smokers in which the policy was targeted towards.

Conclusion

The results of the research displayed the differences and similarities among participants in their attitude, beliefs and knowledge. The trends in comments regarding smoking on campus included participants who supported the implementation of a designated smoking area in order to avoid nonsmokers from being affected by the smoke. However, others were against the designated smoking area stating that smoking should be banned and not allowed to take place on campus. Secondhand smoke was referred to as an action that is unavoidable when smoking in an open area where nonsmokers are present. The data also revealed participants (144) were bothered by smoking on campus, in comparison to participants (340) who favored the implementation of a designated smoking area. Lastly, the results of the survey played a key role in the campus administrators' decision-making about campus smoking policy. Despite administrators' concerns regarding campus safety and freedom of choice, the student-led research can be used to influence policy change.

Reference

1. Current cigarette smoking among adults in the United States. Centers for disease control and prevention, 2016.
2. Singh T, Arrazola RA, Corey CG, Husten CG, Neff LJ, et al. (2016) Tobacco use among middle and high school students United States, 2011-2015. *Centers for Disease Control and Prevention* 65: 361-367.
3. Zullig KJ, Teoli DA, Valois RF (2014) Emotional self-efficacy and alcohol and tobacco use in adolescents. *Journal of Drug Education* 44: 51-66.
4. Tobacco Use. *Healthy People*, 2020.
5. <https://www.nlm.nih.gov/medlineplus/ency/article/000953.htm>
6. Drummond MB (2015) Electronic cigarettes: Perhaps the devil unknown is better than the devil known. *Ann Intern Med* 163: 61.
7. Garg T, Fradkin N, Moskowitz JM (2011) Adoption of an outdoor residential hall smoking policy in a California public University: A case study. *Journal of American College Health* 59: 769-771.
8. Fallin A, Roditis M, Glantz SA (2015) Association of campus tobacco policies with secondhand smoke exposure, intention to smoke on campus, and attitudes about outdoor smoking restrictions. *Am J Public Health* 105: 1098-1100.
9. Primack BA, Land SR, Fan J, Kim KH, Rosen D (2013) Associations of mental health problems with waterpipe tobacco and cigarette smoking among college students. *Substance Use and Misuse* 48: 211-219.
10. Hall ME, Williams RD, Hunt B (2015) Assessment of attitudes regarding tobacco-free campus policy and secondhand smoke exposure among college students, faculty and staff. *American Journal of Health Education* 46: 48-57.
11. Berg CJ, Lessard L, Parelkar PP, Thrasher J, Kegler MC, et al. (2010) College student reactions to smoking bans in public, on campus and at home. *Health Educ Res* 26: 106-118.
12. Bolger K, Carter K, Curtin L, Martz DM, Gagnon SG, et al. (2010) Motivational interviewing for smoking cessation among college students. *J College Stud Psychother* 24: 116-129.
13. Borders TF, Xu KT, Bacchi D, Cohen L, SoRelle-Miner D (2005) College campus smoking policies and programs and students' smoking behaviors. *BMC Public Health* 5: 1-10.
14. Boyers LN, Karimkhani C, Riggs J, Dellavalle RP (2015) US campus and university debit card policies regarding tobacco and electronic cigarettes. *Tobacco Control* 24: 623-624.
15. Costa F, Jessor R, Turbin M (2007) College student involvement in cigarette smoking: The role of psychosocial and behavioral protection and risk. *Nicotine Tob Res* 9: 213-224.
16. Fallin A, Roditis M, Glantz SA (2015) Association of campus tobacco policies with second hand smoke exposure, intention to smoke on campus, and attitudes about outdoor smoking restrictions. *Am J Public Health Nations Health* 105: 1098-1100.

17. Gathuru IM, Tarter RE, Klein-Fedyshin M (2015) Review of hookah tobacco smoking among college students: policy implications and research recommendations. *Am J Drug Alcohol Abuse* 41: 272-280.
18. Klein EG, Bernat DH, Forster JL (2012) Young adult perceptions of smoking in outdoor park areas. *Health and Place* 18: 1042-1045.
19. Lee JG, Ranney LM, Goldstein AO (2011) Cigarette butts near building entrances: what is the impact of smoke-free college campus policies? *Tobacco Control* 22: 107-112.
20. Loukas A, Chow S, Pasch KE, Li X, Hinds III, et al. (2016) College students' polytobacco use, cigarette cessation, and dependence. *Am J Health Behav* 40: 514-522.
21. Niemeier BS, Chapp CB, Henley WB (2014) Improving tobacco-free advocacy on college campuses: a novel strategy to aid in the understanding of student perceptions about policy proposals. *Journal of American College Health* 62: 498-505.
22. Sawdey M, Lindsay RP, Novotny TE (2011) Smoke-free college campuses: no ifs, ands or toxic butts. *Tobacco Control*, 20: i21-i24.
23. Sutfin EL, Reboussin BA, Debinski B, Wagoner KG, Spangler J, et al. (2015) The impact of trying electronic cigarettes on cigarette smoking by college students: a prospective analysis. *American Journal of Public Health* 10: e83-89.
24. Vuolo M, Kelly BC, Kadowaki J (2016) Independent and interactive effects of smoking bans and tobacco taxes on a cohort of us young adults. *American Journal of Public Health* 106: 374-380.
25. <https://psychcentral.com/lib/stages-of-change/>
26. <https://www.ruralhealthinfo.org/community-health/health-promotion/2/program-models/community-organization>
27. Fennell R (2012) Should college campuses become tobacco free without an enforcement plan? *Journal of American College Health* 60: 491-494.
28. Hahn EJ, Rayens MK, Ridner SL, Butler KM, Zhang M, et al. (2010) Smoke-free laws and smoking and drinking among college students *J Community Health* 35: 503-511.
29. Mee S (2014) Self-efficacy: A mediator of smoking behavior and depression among college students. *Continuing Nursing Education* 40: 9-15.
30. Nademin EM, Napolitano MA, Xanthopoulos MS, Fava JL, Richardson E, et al. (2010) Smoking cessation in college-aged women: A qualitative analysis of factors important to this population. *Addiction Research and Theory* 18: 649-666.
31. <https://www.nlm.nih.gov/medlineplus/ency/article/000953.htm>
32. <http://www.samhsa.gov/capt/sites/default/files/resources/fear-messages-prevention-efforts.pdf>