EXAMINING THE IMPACTS OF UNLV'S TOBACCO-FREE POLICY PRE AND POST IMPLEMENTATION

By

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Abstract

Despite the known harmful effects of smoking and secondhand smoke, tobacco-related disease, disability, and death continue to plague the United Stated and contribute to more than 480,000 individuals dying prematurely every year. Comprehensive smoke-free and tobacco free policies strive to prohibit the use of both traditional forms of tobacco (cigarettes, cigars) and smokeless forms of tobacco (vapes). The goal of this project was to examine the impact a tobacco control policy has on prevalence rates of use and knowledge regarding said policy among faculty, staff, and students. In the Fall of 2022, UNLV adopted a comprehensive tobacco-free and smoke-free policy (TFCP). Cross-sectional surveys were distributed to the UNLV community (students, faculty, and staff) in Spring 2022 (pre-implementation) and Fall 2022 (post-implementation) to gauge support for TFCP and examine rates of tobacco and nicotine product use on campus. Prevalence rates were higher for tobacco products at post-implementation among students, faculty, and staff at 28%, and 25% to 37% compared to pre-implementation rates of 10%, 7%, and 12%, respectively. Additionally, higher prevalence rates were observed in nicotine product use with students at post-implementation from 17% to 37%, faculty from 6% to 20% and staff from 7% to 36%. Support for policy was higher pre-implementation among students (m = 3.8, SD = 1.1; m = 3.4, SD = 1.3), faculty (m = 3.8, SD = 1.2; m = 3.4, SD = 1.3), and staff (m = 3.5, SD = 1.3; m =3.3, SD 1.3). Policy perceptions and tobacco/nicotine product use varied by sociodemographic characteristics of students, faculty, and staff. Despite observing higher prevalence rates post-implementation this study has contributed to understanding gaps in the literature such as how these policies affect different subgroups of college subpopulations (e.g., 1st generation students and sexual and gender minorities). Identifying predictors for support of college campus TFCP can help to inform future research on impacts of policy implementation.

Table of Contents

List of Tables

Chapter 1: Introduction/Problem Statement

Tobacco-related death, disease, and disability have remained a problem in the United States (US) for many years as tobacco-related illness continues to be an actual cause of death (Mokdad, 2004) that underlies many of the leading causes of preventable death—such as cardiovascular disease and cancers (Centers for Disease Control & Prevention [CDC], 2023). Smoking tobacco harms nearly every organ in the body and despite these known harmful effects, nearly 28.3 million Americans over the age of 18 currently consume tobacco products, with 99% of them consuming their first product before the age of 26 (CDC Office on Smoking Health, 2023). It is estimated that an additional 2.1 million youth—under the age of 18—in America currently use at least one tobacco product (CDC Office on Smoking and Health, 2023). Around 480,000 Americans die prematurely due to smoking tobacco products (CDC, 2023). Furthermore, it is estimated that an additional 41,000 Americans die prematurely due to exposure to secondhand smoke (American Lung Association [ALA], 2024).

Public health officials and policy makers have attempted to implement various strategies to reduce the burdens of disease associated with tobacco use. These strategies have been implemented at various levels, ranging from global initiatives to local ones. On the global scale, the World Health Organization Framework Convention on Tobacco Control [WHO FCTC], involved a multilateral treaty that established a worldwide control effort that provides countries with the foundation to implement and manage tobacco control (2024). In addition, WHO FCTC identified five measures (MPOWER) that help countries implement effective interventions to reduce demand for tobacco. These five measures include: monitoring tobacco use, protecting people from tobacco smoke, encouraging people to quit using tobacco, warning about the

dangers of tobacco, enforcing tobacco advertising, promotion & sponsorship bans, and raising taxes on tobacco (WHO FCTC, 2024).

Tobacco control efforts also exist on the national level. Here in the U.S., a recent federal law known as Tobacco 21 was implemented to increase the legal age for purchasing tobacco products from 18 to 21 with hopes of deterring youth and young adults from purchasing tobacco products (Food and Drug Administration [FDA], 2021). Additional tobacco control efforts include banning flavored and menthol tobacco products in certain cities and states (Office on Smoking and Health, National Center for Chronic Disease Prevention and Health Promotion, 2023).

One of the most important strategies revolves around the adoption of smoke-free and tobacco-free policies. These policies strive to prohibit the use of both traditional forms of tobacco (cigarettes, cigars) and smokeless forms of tobacco (vapes, JUUL) (CDC Office on Smoking and Health, 2021). The inclusion of smokeless tobacco products is essential as research has consistently shown that individuals–both users and non-users–perceive these products to be less harmful than traditional tobacco products (East et al., 2018; Kelsh et al., 2023).

Smoke-free and tobacco-free policies have been shown to be effective in various ways, which is why they continue to be adopted and implemented in various settings. According to the U.S. Surgeon General, smoke-free workplaces and communities have been shown to make individuals decrease use of tobacco products by providing less opportunity for individuals to smoke, decreasing the social acceptability to smoke post-implementation of policy, and decreasing the visibility of individuals who are smoking (Office on Smoking and Health, National Center for Chronic Disease Prevention and Health Promotion, 2021). Furthermore, in a systematic review conducted by the Task Force on Community Preventive Services with the

CDC, results indicated that two-thirds of the included studies (n = 21) showed a median decrease in tobacco use prevalence by about 3.6% post-implementation of a smoke-free policy (2010). In addition, smoke-free policies have been shown to be effective in reducing exposure to secondhand smoke (International Agency for Research on Cancer, World Health Organization [WHO], 2009, p. 253-256).

Smoke-free and tobacco-free policies have been continually adopted in U.S. school settings—from kindergarten to colleges—to deter youth and young adults from using tobacco products and to prevent exposure to secondhand smoke. As of 2023, about 2,614 colleges and universities in the U.S. had adopted 100% smoke-free and tobacco-free policies (American Nonsmokers Rights Foundation [ANRF], 2023). The University of Nevada, Las Vegas (UNLV) added its name to the list in September 2021 when its policy was officially adopted (UNLV, 2021). However, the policy did not officially take effect until the Fall semester of 2022. These comprehensive policies aim to include all tobacco products ranging from cigarettes, e-cigarettes, hookah, pipes, and any other form of smoke or smokeless tobacco. The intended goal of these policies is to create a healthier social and physical environment with less air pollutants for anyone attending, working on, living on, or visiting these college campuses (CDC, 2023).

The goals of these policies usually include reducing rates of exposure to secondhand smoke for those who are not users is an essential driver of these policies because secondhand smoke has known harmful effects such as causing adverse reproductive health effects and diseases like coronary heart disease, strokes, and lung cancer (CDC, 2022). In addition, these policies strive to reduce rates of use among current smokers. They typically include cessation resources alongside policy implementation. UNLV, for example, provided access to anyone affiliated with UNLV to the Nevada Tobacco Quitline for free, cessation assistance, including

counseling and nicotine replacement therapy, as well as efforts available through the Student Health Center, health insurance companies, and counseling services for those currently using nicotine and/or tobacco products (UNLV, 2023). Furthermore, creating environments that are smoke- and tobacco-free supports a shift in social norms away from tobacco use; social norms have been shown to influence behaviors, especially in youth and young adults (Institute of Medicine (US) Committee on Preventing Nicotine Addiction in Children and Youths, 1994). This points to the need for smoke-free and tobacco-free policies in youth and young adult arenas, including at colleges and universities across the nation.

Prior to 2021, UNLV permitted the use of all tobacco and nicotine products on campus if individuals were outdoors and at least 25-feet from the entrance of a campus building. Previous efforts to adopt a comprehensive tobacco-free and smoke-free policy were unsuccessful.

However, in September 2021, UNLV successfully adopted a comprehensive tobacco-free campus policy (TFCP), stating, “smoking, using electronic smoking devices, or using other tobacco products is prohibited on any UNLV campus.” Furthermore, this policy applies to “all UNLV faculty, staff, students, clients, contractors, vendors, visitors, lessees and individuals residing on the UNLV campus” [UNLV, 2021]. UNLV’s TFCP officially went into effect in the Fall 2022 semester after various media campaigns were launched across campus (e.g., signs, banners, posters, etc.) and on conventional and social media (e.g., UNLV RAVE, Twitter and other social media platforms, official university emails, videos, a website, the news, etc.).

Adoption of the TFCP was influenced by various factors, such as other local and state tobacco control policies (e.g., the Nevada Clean Indoor Air Act) and the support of external partners (i.e., Southern Nevada Health District [SNHD]). Originally passed in 2006, the Nevada Clean Indoor Air Act protects individuals from exposure to secondhand smoke by prohibiting the

use of tobacco products in most public indoor places. Then in 2019, the act was extended to include prohibitions on vapor and e-cigarette product use in public indoor spaces (SNHD, 2022). Another contributing factor influencing the adoption of UNLV's TFCP was the COVID-19 mask mandate. In the height of the pandemic, a mask mandate was imposed requiring all individuals on campus to be masked both indoors and outdoors, making it virtually impossible to smoke on campus. This mandate opened the door for campus personnel to see the ability and benefit of having a smoke-free and tobacco-free environment. Adoption was also facilitated by support from university leadership, a committed team, engagement with campus and off-campus stakeholders, and sustained advocacy within the policy process (Gakh et al., 2023).

With adoption being fairly recent, the goal of this project is to assess how UNLV's adoption of a TFCP impacted tobacco and nicotine-related perceptions and behaviors among UNLV students, faculty, and staff. One way to examine effectiveness is to assess rates of use and support for policy among UNLV students, faculty, and staff before and after policy adoption. Better understanding this information not only provides evidence as to how tobacco-related behaviors may change pre- and post-implementation of a TFCP, but also informs future directions for other universities in their infancy of developing their own TFCP.

Chapter 2: Background & Literature Review

The nationwide movement to adopt TFCP has been on the rise within the last decade as the burden of tobacco-related disease has been a reoccurring target of the Healthy People initiative (Office of Disease Prevention and Health Promotion [ODPHP], n.d.). Moreover, examining how different populations at universities across the US (e.g., students, faculty, staff) have been impacted by TFCP is essential for this study to best understand the impacts of a TFCP. Information collected from these previously conducted studies helped to inform both the theoretical framework and hypotheses for the study presented here.

2.1. Tobacco- & Smoke-Free Campus Policies

Efforts to adopt tobacco-free and smoke-free policies are on the rise on US college and university campuses. When looking at the more than 2,600 colleges and universities with TFCP, it is important to distinguish between smoke-free and tobacco-free policies. A *comprehensive policy* prohibits using all products containing tobacco, including tobacco products that produce smoke and those that are smokeless. A *smoke-free policy* prohibits using products like cigarettes and cigars, which must be ignited and "smoked," but does not restrict smokeless tobacco products, such as vapes. Despite adoption coming later to UNLV, a comprehensive TFCP was implemented at UNLV in Fall 2022, adding to the other 2,193 universities with TFCP prohibiting all forms of tobacco (ANRF, 2023).

Although support for TFCP is not ubiquitous at every university, the majority of faculty, students, and staff support TFCP prior to adoption and continue to support post-implementation. Furthermore, increases in support are often observed among faculty, staff, and students post-implementation of TFCP (Wray et al., 2020; Lupton & Townsend, 2015). According to previously conducted studies, respondents expressed that one of the predicting factors for levels

of support for TFCP comes from the belief that universities and colleges have the responsibility of providing clean air to those on campus (Kecojevic et al., 2020; Do et al., 2020). Another contributing factor to support for TFCP is that individuals typically report that they prefer to socialize in smoke free environments (Cooper et al., 2016). Nonetheless, support for TFCP is not unanimous among students, faculty, and staff and differences in subgroups are explained in subsections below.

2.2. Students

Tobacco use among college and university students in the US has been continually prevalent and contributed to the burden of disease. As previously mentioned, traditional college age students (18-24) are typically consuming e-cigarettes more often than other nicotine or tobacco products, but that does not mean other tobacco products are not consumed (CDC, 2023; Kelsh et al., 2023). A study recently conducted with more than 6,000 college students across the nation showed that 78% of those who used a nicotine-based product chose e-cigarette or other vape products, whereas only 40% reported using cigarettes (Elflein, 2023).

With rates of use continuing to increase (Nyman et al., 2022), one goal of TFCP is to attempt to decrease rates of use among student populations on campus. However, conclusions surrounding the effectiveness of TFCP on prevalence rates are mixed, as some studies have shown student rates of use increase after adoption of TFCP. For example, a study at Oregon State University conducted by Braverman and colleagues (2017) showed a 7-fold increase in e-cigarette use among students' post-adoption of a comprehensive TFCP. Likewise in a study of five universities across the United States, the number of students reporting e-cigarette use nearly doubled post-implementation of policy going from 14.8% to 26.7%. However, in this same study, students reported lower rates of use for cigarettes and hookah (Nyman et al., 2022).

Another example of this comes from a five-year study examining changes in tobacco use behavior post-implementation, in which student rates of cigarettes remained constant, however, e-cigarette use initially declined but eventually increased again (Wray et al., 2020). Despite conflicting results pertaining to student use and effectiveness of TFCP, overall smoke-free policies have shown effectiveness in various ways. According to The Guide to Community Preventive Services (CPS, 2018), smoke-free policies have been shown to reduce: exposure to secondhand smoke, prevalence rates of tobacco use, tobacco related morbidity and mortality, and initiation of use of tobacco among youth and young adults. Furthermore, smoke-free policies have shown effectiveness in increasing the number of tobacco users who quit (CPS, 2018).

When examining support for TFCP among student populations, there are notable distinctions in responses among student subpopulations. First, there are notable differences in support among users and non-users. Typically, students who use any form of tobacco are less likely to support TFCP for various reasons, including perceived infringements on personal freedoms and doubts regarding effectiveness of TFCP in providing cleaner air (Gatto et al., 2018; Glasgow et al., 2021). Furthermore, demographic characteristics such as identifying as female and non-white have been associated with high rates of support for TFCP (Braverman et al., 2017; Kecojevic et al., 2020). Another trend previous studies have seen is older students—those who are graduate students for example—tend to show higher rates of support (Marion, Strand, & Baldridge, 2021; Do et al., 2020). Finally, lower rates of support are observed among students whose peers and social circles include individuals who use tobacco products (Glasgow et al., 2021).

Despite a robust evidence base of TFCP research with student populations, there are some factors that have not been adequately explored in previous studies, such as identifying as a

sexual and gender minority (SGM). Identifying as an SGM refers to someone who does not identify as heterosexual and/or the sex they were assigned at birth (e.g., individuals who identify as transgender, queer, non-binary, gay/lesbian, bisexual, pansexual etc.). Previous research with SGM college students indicated that this population typically has higher prevalence rates of tobacco use and initiate use at a younger age compared to their non-SGM counterparts (Hinds et al., 2019; Lee, Griffin, & Melvin, 2009).

Another understudied population that will be explored in this study is first-generation college students. Students are considered to be first-generation when neither of their parents have received a 4-year degree from a college or university. These students are typically from families with fewer financial resources and lower socio-economic classes (Green & Wright, 2017), two factors frequently associated with increased prevalence rates of tobacco use (Swisher & Dennison, 2020). Despite being at increased risk for use, first-generation students have been shown to be less likely to report substance use compared to their non-first-generation counterparts (Bui, 2013). Therefore, exploring the relationship between first-generation students and tobacco use is essential to understanding how TFCP impacts different types of students.

2.3. Faculty and Staff

According to the CDC (2023), nearly 13 out of 100 adults aged 25-44 and 15 out of 100 adults aged 45-64 currently smoke cigarettes. Previous research on college campuses is consistent with this; rates of cigarette use are typically higher in faculty/staff populations than in student populations (Wray et al., 2021). However, some studies have shown that adoption of TFCP can reduce rates of use for university faculty and staff. For example, Wray and colleagues (2021) found that faculty and staff rates of use decreased ~5-7% for all tobacco products, including cigarettes and e-cigarettes, post-implementation of a TFCP. On the other hand,

Figueroa and colleagues (2014) found that rates of use remained constant pre- and post-adoption of a TFCP.

As with students, faculty and staff identifying as female and non-white typically show higher rates of support for TFCP both pre- and post-implementation (Glasgow et al., 2021; Cooper et al., 2016). Furthermore, faculty and staff who use any form of tobacco product were much less likely to show support for TFCP both before and after adoption of TFCP (Braverman et al., 2021). Compared to students, overall support by faculty and staff combined was generally higher, and this may be attributed to the age gap between faculty/staff and students (Kecojevic et al., 2020). However, when faculty and staff were separated into their own subgroups, staff were less likely to show support for TFCP than faculty (Glasgow et al., 2021).

Finally, beliefs surrounding the effectiveness of TFCP on reducing tobacco related litter and exposure to secondhand smoke varied among studies. For example, in a study conducted at Arizona State University, 48.8% of faculty and staff reported reduced exposure to secondhand smoke and 61.9% reported a reduction in exposure to tobacco related litter post-adoption of a TFCP (Figueroa et al., 2014). On the contrary, in a cross-sectional study conducted across five U.S. universities using self-report data, the percentage of students being exposed to secondhand smoke post-implementation increased from 17.5% to 40.6% (Nyman et al., 2022). Overall, rates of support for TFCP, prevalence rates of use, and beliefs on effectiveness can be impacted by various contributing factors and vary depending on the college or university.

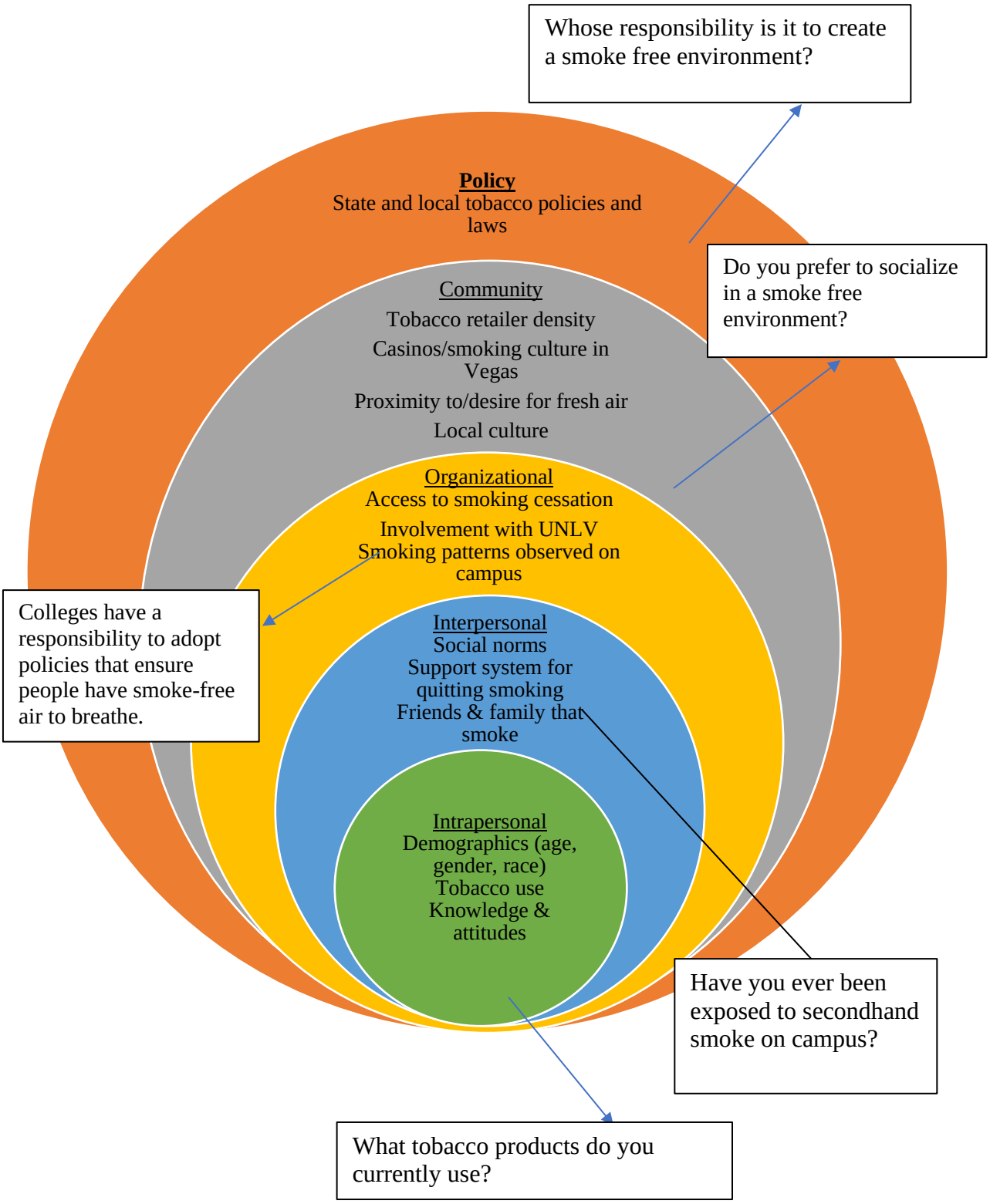
2.4. Theoretical Framework

This project examines the downstream effects of a policy on intrapersonal and interpersonal constructs; thus, the social-ecological model (SEM) is an appropriate theoretical framework. According to the Agency for Toxic Substances and Disease Registry (2015, p. 20),

"the social ecological model understands health to be affected by the interaction between the individual, the group/community, and the physical, social, and political environments." The SEM allows for examination of multiple aspects of a health behavior, as it considers factors from the individual, interpersonal, intrapersonal, community, and public policy dimensions.

In this study, specifically, both the behavior of smoking and how a TFCP affects behaviors and attitudes is a result of a combination of factors from varying levels, all of which need to be considered (Porter et al., 2022). Previous studies examining the impact of tobacco policy in workplace and academic environments have frequently used the SEM as a framework. In a scoping review from Parkinson and colleagues (2022), multiple studies utilized the SEM to examine effects of tobacco policy in workplace settings. The review found that when an intervention targets two or more levels of the SEM, and individual-level behaviors (e.g., socioeconomic status, knowledge and beliefs, access to cessation services, etc.) are addressed, health inequities and disparities can be reduced. **Figure 1** outlines how each level of the SEM is incorporated in the present study and factors within each level that can potentially impact behaviors and attitudes about UNLV's TFCP.

Figure 1. Social-Ecological Model Concept Map



2.5. The Need for the Current Study

Although multiple studies have been conducted examining TFCP on U.S. college and university campuses, there are areas that have been identified as needing further exploration. First, this study will disaggregate faculty and staff attitudes and behaviors regarding tobacco use and TFCP to examine these populations separately. Usually, faculty and staff are aggregated in similar studies, despite differences in sociodemographic factors associated with tobacco use behaviors (e.g., education levels and socioeconomic status [SES]). This study will also examine two subpopulations of students that have not been previously explored in this literature: SGM and first-generation college students. UNLV is an important campus to study this population because nearly 60% of UNLV students are first-generation (Alipon, 2023). Furthermore, many students at UNLV identify as part of the LGBTQIA+ community and therefore should be included in this study. Finally, there will be an emphasis placed on non-traditional forms of tobacco, such as e-cigarettes, in this study. Use of e-cigarettes among college aged students continues to rise and there is a lack of knowledge on how these types of products are perceived in the context of recently implemented TFCP (CDC, 2023).

The overarching goal of this study is to examine the impact of a TFCP on (1) beliefs and support for a tobacco policy and (2) prevalence rates of tobacco and nicotine product uses at UNLV. Stratified analyses will be conducted to examine associations for (i) students, (ii) faculty, and (iii) staff. Specifically, this study asks:

1. What sociodemographic characteristics are associated with student support of the UNLV TFCP pre-implementation?
2. What sociodemographic characteristics are associated with student support of the UNLV TFCP post-implementation?

3. What sociodemographic characteristics are associated with faculty support of the UNLV TFCP pre-implementation?
4. What sociodemographic characteristics are associated with faculty support of the UNLV TFCP post-implementation?
5. What sociodemographic characteristics are associated with staff support of the UNLV TFCP pre-implementation?
6. What sociodemographic characteristics are associated with staff support of the UNLV TFCP post-implementation?
7. For research questions 1-6, are there differences in predictors for support among students, faculty, and staff pre- and post-implementation?
8. Is there a difference in rate of support among first-generation students versus non-first-generation students pre- and post-implementation?
9. Is there a difference in the prevalence rates of tobacco and nicotine product use pre- and post-implementation of the TFCP?

Chapter 3: Methods

This cross-sectional study involving UNLV faculty, staff, and students, was conducted across 2 semesters in 2022. Recruitment processes for participation were identical for both data collection time periods. Additionally, the same categories of measures were used in both surveys, including demographic and campus life variables, tobacco attitudes, and frequency/quantity of tobacco products. A 3-part data analysis plan outlines the statistical analyses that were used to address the research questions and hypotheses outlined above.

3.1 Participants and Procedures

Data for the present study were collected in the Spring 2022 semester (pre-implementation) and Fall 2022 semester (post-implementation) from separate samples of UNLV students, faculty, and staff. Recruitment for participation varied based on the sub-population, however all participants had to be 18 years of age or older. To obtain the student population, all classes offered at UNLV with an enrollment of at least 10, were put into a database (Spring 2022 N = 9,127; Fall 2022 N = 6,118) and ten classes from each college (e.g., law, dental, urban affairs, etc.) were randomly selected. This randomization process was done twice for each data collection time period.

Next, professors of these classes were sent an email asking them to share the survey with students in that specific class section. For the Spring 2022 data collection, 30 classes agreed to participate and distribute the survey, whereas 21 agreed to participate during the Fall 2022 survey. We supplemented this recruitment approach by posting an announcement on UNLV RAVE, a weekly e-newsletter that sends messages to UNLV students. For faculty and staff (IT, administration, maintenance, etc.), anyone with an active UNLV email was sent the link to the survey. Identical recruitment procedures were used for both data collection periods.

In Spring 2022, a total of 1,127 individuals participated and in Fall of 2022, 685 individuals participated. The sample populations used in this study were somewhat representative of the larger UNLV population but not fully. In terms of representativeness, the post-implementation survey population appears to be slightly more representative. First, the amount of first-generation students in the post-survey (67%) is equal to the proportion of students identifying as first-generation at UNLV. Next, despite the majority of participants identifying as White, 40% of respondents did identify as Hispanic or Latinx, and a little over 40% of all respondents were racial or ethnic minorities. When it came to the student population, nearly two-thirds of both populations were racial and/or ethnic minorities, which aligns with the larger UNLV student body (UNLV, 2024). Likewise, when it comes to faculty, the overwhelming proportion of White faculty members align with the faculty demographics as a whole. However, when it comes to American Indian, it appears that they were over represented among all three of the subgroups. Nonetheless, both sample populations included a range of diverse individuals that is somewhat representative of the UNLV community.

Participation for all faculty, staff, and students was completely voluntary and confidential. All participants read and agreed to consent by checking a box and no personal information was collected from participants. Consent was obtained for every participant prior to completing the survey. Respondents had an opportunity to provide an email in a separate survey for a chance to win one of thirty $25 Amazon gift cards. Overall, this study had minimal risk to the participants, meaning the chances of harm resulting from participation was no more than what is expected/encountered in everyday life. This study was approved by UNLV's institutional review board (IRB #: UNLV-2021-218) and was deemed exempt.

3.2 Measures

Questions in the survey were derived from multiple sources. Some questions came from previously conducted surveys on tobacco policy implementation, some from tobacco toolkits at the CDC and other universities, and the remainder were created by the research team (Jefferson et al., 2014; Loomis et al., 2008; Ramachandran et al., 2020; Figueroa et al., 2014). The questions were separated into the following categories: demographic and campus life variables, tobacco attitudes, and frequency/quantity of use of tobacco products.

3.2.1. Demographic and Campus Life Variables

Demographic variables included status within the university (faculty, staff, student), age (in years), race/ethnicity (American Indian/Alaska Native, Asian or Asian American, Black or African American, Middle Eastern/North African or Arab, Native Hawaiian or Pacific Islander, White, Multiple races), gender (man, woman, transwoman, transman, genderqueer, agender, gender fluid, non-binary), and sexual orientation (heterosexual, bisexual, gay, lesbian, pansexual, queer, and questioning). Additionally, students were asked about enrollment status (part vs full time) and first-generation status (yes/no). Lastly, faculty and staff were asked about their position within UNLV (administrative staff, operations staff, professional staff, non-tenure track faculty, tenure track/tenured faculty, project scientist, and postdoctoral scholar) and employment level (part-time or less than full time, full time, and I don't know).

3.2.2. Tobacco Attitudes

Assessing attitudes related to tobacco and the UNLV TFCP included asking respondents the questions listed in **Table 1**. The first three questions allowed us to understand beliefs regarding UNLV's TFCP, whereas the final three questions were used to determine predictors of support for UNLV TFCP.

Table 1. Survey Questions Regarding Tobacco Attitudes

Question	Response options	Source
"Do you think it is the responsibility of the school's administration to enact a policy that protects the campus community from exposure to secondhand smoke?"	Yes No Unsure	Created by research team
"In your opinion, who should be responsible for enforcing a tobacco-free policy on campus?"	School administrators Faculty and instructors Students Campus police Other	Created by research team
"In your opinion, how difficult would it be to enforce a tobacco-free policy on your campus?"	Scale from 1 (not difficult at all) to 3 (very difficult)	Created by research team
"In your opinion, how important is it to enact a comprehensive tobacco-free policy on your campus?"	Scale from 1 (not important at all) to 3 (very important)	Created by research team
"Colleges have a responsibility to lessen the risk of tobacco addiction by adopting policies that discourage tobacco use"	Scale ranging from 1 (strongly disagree) to 5 (strongly agree)	Georgia Tobacco-Free Colleges & Universities Toolkit
"Colleges have a responsibility to adopt policies that ensure people have smoke-free air to breathe"	Scale ranging from 1 (strongly disagree) to 5 (strongly agree)	Georgia Tobacco-Free Colleges & Universities Toolkit
"Colleges should regulate tobacco use on campus"	Scale ranging from 1 (strongly disagree) to 5 (strongly agree)	Georgia Tobacco-Free Colleges & Universities Toolkit

3.2.3. Frequency/Quantity of Tobacco Products

To determine frequency of use all participants were asked which tobacco products (none, cigarettes, cigars, cigarillos, pipe with tobacco, smokeless tobacco (chew), and hookah with tobacco) and/or nicotine products (none, rechargeable e-cigarette, disposable e-cigarette, medium size tank device, large tank size device, e-cigar, e-pipe, and I have used these products but not to vape nicotine) they used within the past 30 days. For analysis, we coded none=0 and use of any tobacco or nicotine product=1. Those who responded to using a vaping product for non-nicotine use were coded 0 for analysis.

3.3 Data Analysis

Separate analyses were conducted for students, faculty, and staff. However, due to the sample populations differing between pre- and post-implementation assessments, no longitudinal methods were used in this analysis. Instead, prevalence rates of use were compared pre- and post-implementation of the UNLV TFCP. Furthermore, chi-square analyses were conducted to compare rates of use pre- and post-implementation. Descriptive statistics were calculated for each study population (students, faculty, staff) demographic variables, tobacco attitude questions, and tobacco use frequency questions. Various statistical methods were used to answer the study questions. First, to determine prevalence rates of use for all tobacco products, frequency and descriptive analyses were conducted and then compared among subgroups for potential differences. Using frequencies and descriptives is most appropriate because the samples are independent of one another, and change in rates cannot be estimated.

Additionally, chi-square analyses were completed to further explore the relationship between tobacco use at pre- and post-implementation. Finally, regression analysis will be conducted to assess the relationship between sociodemographic factors and tobacco/poly-tobacco

use as well as identifying predictors of support for TFCP. Regression analysis allows for multiple variables to be assessed simultaneously, while also identifying the strength of the relationship between independent and dependent variables. Participants with missing data were excluded from all statistical analyses. Results were considered statistically significant at $p<0.05$. SPSS version 29.0 was used for all analyses.

Chapter 4: Results

4.1 Demographics of Participants

A total of 1,127 individuals (452 students, 317 faculty, and 358 staff members) completed the pre-implementation survey in Spring 2022. Slightly more than half (53.8%) of participants identified as female, 29.5% identified as male, and the remaining 16.7% identified themselves as other (trans-woman, trans-man, non-binary, etc.). Almost half of the participants were White (53.9%), followed by Asian (12.7%), multiple races (6.2%), Black (4.6%), and other/race not listed (22.6%). Around 29% of students, faculty, and staff identified as being of Hispanic or Latinx origin. The average age of all respondents was 37.5 years old (SD = 14.6). The majority of students were enrolled full-time (88.3%) and slightly less than half of the students (43%) were first-generation students. For faculty and staff, almost all (98%) reported being employed full-time at UNLV.

For the post-implementation survey, 685 individuals (247 students, 199 faculty members, and 239 staff members) completed the survey measures. Across all subgroups, 53.8% of the participants identified as female, 42.7% identified as male, and the remaining 3.5% identified themselves as other (trans-woman, trans-man, non-binary, etc.). Slightly more than half of the participants were White (57%), followed by American Indian (10%), Asian (9.7%), multiple races (7%), and other/race not listed (16.3%). Nearly 40% of the post-implementation respondents identified as being of Hispanic or Latinx origin. The average age of respondents was slightly younger than the pre-implementation survey, at 34.5 years of age (SD = 13.9). Nearly two-thirds (65.7%) of the student population were first-generation and the majority of students were enrolled full-time (83.8%). Most faculty and staff reported being employed full-time at

UNLV (83.8%). Separate demographic analyses for each of the sub-populations can be found below in Table 2.

Table 2. Demographics of Participants by Sub-group

	Pre-survey—Spring 2022 N = 1,127			Post-survey—Fall 2022 N = 685		
	Students	**Faculty**	**Staff**	**Students**	**Faculty**	**Staff**
Participants n (%)	452 (40.1)	317 (28.1)	358 (31.8)	247 (36.1)	199 (29.1)	239 (34.9)
Gender n, (%)						
Female	256 (56.6)	145 (45.7)	205 (57.3)	126 (51)	88 (44.2)	111 (46.4)
Male	119 (26.3)	118 (37.2)	96 (26.8)	83 (33.6)	75 (37.7)	100 (41.8)
Trans woman	1 (0.2)	1 (0.3)	0	1 (0.4)	1 (0.5)	0
Trans man	2 (0.4)	0	2 (0.6)	2 (0.8)	1 (0.5)	1 (0.4)
Genderqueer	4 (0.9)	2 (0.6)	0	1 (0.4)	0	1 (0.4)
Agender	0	0	0	1 (0.4)	0	2 (0.8)
Genderfluid	2 (0.4)	0	1 (0.3)	1 (0.4)	0	0
Intersex	0	0	0	0	0	0
Non-binary	9 (2)	6 (1.9)	3 (0.8)	4 (1.6)	3 (1.5)	1 (0.4)
Not listed	2 (0.4)	1 (0.3)	1 (0.3)	0	0	1 (0.4)
Race						
American Indian	4 (0.9)	1 (0.3)	4 (1.1)	26 (10.5)	10 (5)	24 (10)

Asian	94 (20.8)	19 (6)	30 (8.4)	34 (13.8)	7 (3.5)	17 (7.1)
Black	15 (3.3)	11 (3.5)	26 (7.3)	11 (4.5)	6 (3)	8 (3.3)
Middle Eastern	8 (1.8)	4 (1.3)	6 (1.7)	5 (2)	5 (2.5)	4 (1.7)
Native Hawaiian/Pacific Islander	1 (0.2)	4 (1.3)	2 (0.6)	8 (3.2)	7 (3.5)	10 (4.2)
White	202 (44.7)	206 (65)	199 (55.6)	100 (40.5)	112 (56.3)	129 (54)
Biracial	39 (8.6)	8 (2.5)	23 (6.4)	18 (7.3)	12 (6)	12 (5)
Not listed/other	28 (6.2)	18 (5.7)	17 (4.7)	15 (6.1)	7 (3.5)	11 (4.6)
Sexual orientation						
Straight	266 (58.8)	236 (74.4)	262 (73.2)	169 (68.4)	134 (67.3)	163 (68.2)
Bisexual	64 (14.2)	11 (3.5)	13 (3.6)	18 (7.3)	7 (3.5)	8 (3.3)
Gay	15 (3.3)	8 (2.5)	13 (3.6)	7 (2.8)	11(5.5)	15 (6.3)
Lesbian	9 (2)	2 (0.6)	5 (1.4)	4 (1.6)	5 (2.5)	5 (2.1)
Pansexual	13 (2.9)	1 (0.3)	3 (0.8)	4 (1.6)	1 (0.5)	5 (2.1)
Queer	11 (2.4)	7 (2.2)	4 (1.1)	9 (3.6)	3 (1.5)	7 (2.9)
Questioning	8 (1.8)	1 (0.3)	0	3 (1.2)	3 (1.5)	2 (0.8)
Not listed	8 (1.8)	4 (1.3)	7 (2)	4 (1.6)	3 (1.5)	6 (2.5)

Age (m, SD)	**25.3, 7.5**	**46.6, 12.8**	**45.3, 11.5**	**24.9, 6.2**	**42.8, 14.3**	**37.8, 13.6**
18-24	236 (52.2)	7 (2.2)	3 (0.9)	140 (56.7)	20 (10)	46 (19.2)
25-44	146 (32.3)	122 (38.5)	154 (43)	79 (32)	73 (36.7)	104 (43.5)
45-64	15 (3.3)	120 (38)	135 (37.7)	3 (1.2)	69 (34.7)	60 (25.1)
65+	0	26 (8.2)	17 (4.7)	0	9 (4.5)	8 (3.3)
First-generation student						
Yes	182 (40.3)			72 (29.1)		
No	214 (47.5)			147 (59.5)		
Enrollment status						
Full-time	348 (77)			183 (74.1)		
Part-time	46 (10.2)			35 (14.2)		
Level of employment						
Part time or less than full time		7 (2.2)	3 (0.8)		15 (7.5)	32 (13.4)
Full time		265 (83.6)	304 (84.9)		144 (72.4)	177 (74.1)
I don’t know		2 (0.6)	0		7 (3.5)	8 (3.3)
Position at UNLV						
Administrative staff		49 (15.5)	156 (43.6)		23 (11.6)	82 (34.3)

Operations staff	4 (1.3)	28 (7.8)	7 (3.5)	44 (18.4)
Professional staff	38 (12)	100 (27.9)	28 (14.1)	53 (22.2)
Non-tenure track faculty	64 (20.2)	0	42 (21.1)	8 (3.3)
Tenure track of tenured faculty	106 (33.4)	1 (0.3)	53 (26.6)	13 (5.4)
Project scientist	2 (0.6)	0	3 (1.5)	2 (0.8)
Postdoctoral scholar	11 (3.5)	1 (0.3)	4 (2)	4 (1.7)
Other	0	22 (6.1)	5 (2.5)	10 (4.2)

Note. Some column percentages do not add up to 100 due to missing data.

4.2 Students

4.2.1 Pre-Implementation Findings

We regressed the average response to the item *"colleges have a responsibility to lessen the risk of tobacco addiction by adopting policies that discourage tobacco use"* on race, sexual orientation, gender, age, enrollment status, first-generation status, and tobacco/nicotine product use. Overall, the model was significant ($F(8, 376) = 5.15$, $p < .001$), however, only past 30-day tobacco use ($b = -.56$, $p = .007$) and nicotine use ($b = -.64$, $p < .001$) was negatively associated with responses. In other words, students reporting current tobacco or nicotine product use had less support for TFCP compared to those who don't consume tobacco and/or nicotine products. However, the predictors used only explained 8% of variance in responses suggesting other unobserved factors contribute to levels of support among students.

Next, students were asked about colleges having the responsibility to adopt policies that ensure people have smoke-free air to breathe and only two of the variables were identified as being predictors of support and being significant. First, being a user of tobacco products ($b = -.51$, $p = .004$) was shown to be associated with decreased levels of support for TFCP. Likewise, those who use nicotine products were less likely to support TFCP compared to those who have not used within the past 30 days ($b = -.62$, $p < .001$). Despite overall model significance ($F(8, 377) = 6.21$, $p < .001$), these variables accounted for only 10% of variability in responses.

Finally, when students were asked about colleges regulating tobacco use on campus, tobacco ($b = -.56$, $p = .008$) and nicotine ($b = -.69$, $p < .001$) users were once again less likely to support the TFCP compared to their non-using counterparts. Additionally, being a part-time student was associated with lower levels of support compared to full-time students ($b = -.41$, $p = .02$). Age also had a significant association suggesting that as students get older, they are more

likely to support TFCP ($b = .02$, $p = .004$). While the model showed significance ($F(8, 377) = 6.5$, $p < .001$), only 10.2% of variability can be attributed to the included variables .

Table 3. Student Pre-Implementation Predictors of Support

	Beta	t	p-value	95% CI	VIF	Adjusted R^2
Colleges have a responsibility to lessen the risk of tobacco addiction by adopting policies that discourage tobacco use						.08
Constant	3.79	16.66	< .001*	3.34, 4.24		
Sexual minority (ref: heterosexual)	.12	1.12	.27	-.1, .34	1.03	
Non-white (ref: white)	-.09	-.84	.4	-.29, .12	1.02	
Gender (ref: female)	.14	1.25	.21	-.08, .35	1.04	
Age	.001	.16	.87	-.01, .02	1.14	
First-generation status (ref: non-first-generation student)	.02	-.21	.84	-.23, .18	1.03	
Part time student (ref: full-time student)	-.14	-.83	.41	-.47, .19	1.12	
Tobacco use (ref: non-user)	-.56	-2.72	.007*	-.96, -.15	1.18	
Nicotine use (ref: non-user)	-.64	-3.91	< .001*	-.95, -.32	1.17	
Colleges have a responsibility to adopt policies that ensure people have smoke-free air to breathe						.098
Constant	4.14	21.5	< .001*	3.78, 4.53		
Sexual minority (ref: heterosexual)	-.07	-.69	.49	-.25, .12	1.03	
Non-white (ref: white)	.03	.35	.72	-.14, .21	1.02	
Gender (ref: female)	.13	1.35	.18	-.06, .31	1.04	

Age	.004	.63	.53	-.01, .02	1.14	
First-generation status (ref: non-first-generation student)	.02	-.17	.86	-.19, .16	1.03	
Part time student (ref: full-time student)	-.21	-1.44	.15	-.49, .08	1.12	
Tobacco use (ref: non-user)	-.51	-2.91	.004*	-.85, -.17	1.18	
Nicotine use (ref: non-user)	-.62	-4.5	< .001*	-.89, -.35	1.17	
Colleges should regulate tobacco use on campus						.102
Constant	3.45	14.94	< .001*	2.99, 3.9		
Sexual minority (ref: heterosexual)	-.11	-.96	.34	-.33, .11	1.03	
Non-white (ref: white)	.08	.77	.44	-.13, .29	1.02	
Gender (ref: female)	.15	1.38	.17	-.07, .37	1.04	
Age	.02	2.86	.004*	.01, .04	1.14	
First-generation status (ref: non-first-generation student)	-.02	.19	.85	-.19, .23	1.03	
Part time student (ref: full-time student)	-.41	-2.41	.02*	-.75, -.08	1.12	
Tobacco use (ref: non-user)	-.56	-2.7	.008*	-.97, -.15	1.18	
Nicotine use (ref: non-user)	-.69	-4.16	< .001*	-1.02, -.36	1.17	

*Indicates a p-value of 0.05 or less

4.2.2 Post-Implementation Findings

Post-implementation analyses showed similar findings as the pre-implementation analyses; however, fewer significant associations were identified. Nicotine use was the only predictor variable that showed significance in all three of the regression models run for students. For the first regression, colleges having the responsibility to adopt policies discouraging tobacco use, nicotine use ($b = -.73$, $p < .001$) was a significant predictor, indicating that users showed decreased support for policy post-implementation compared to their non-nicotine using counterparts. Likewise, students who identified as sexual minorities were less likely to show support than their counterparts who identified as heterosexual ($b = -.41$, $p = .02$). The remaining predictor variables were not significantly associated with the outcome; however, the overall model was significant $F(98, 205) = 4.1$, $p < .001$). Furthermore, 10% of the variability in this model can be attributed to the variables used.

When examining how students feel about colleges having the responsibility to adopt policies that ensure people have smoke-free air to breathe, SGM students showed decreased support for TFCP compared to those who identify as heterosexual ($b = -.29$, $p = .05$). Additionally, students who had used nicotine products within the past 30 days also showed decreased support for TFCP compared to students who are non-users ($b = -.72$, $P < .001$). The overall model was significant ($F(98, 205) = 5.92$, $p<0.001$), and explained 16% of the variability in responses.

The final regression used to gauge student support for TFCP surrounded the belief that colleges should regulate tobacco use on campus. The one predictor variable that showed significance was past 30-day nicotine use ($b = -1.0$, $p < .001$), which indicates that students who did not report use of a nicotine product within the past 30 days showed higher levels of support

compared to students who had reported use within the past 30 days. The final model explained 15% of the variance in responses. Results for all predictors are presented table 4.

Table 4. Student Post-Implementation Predictors of Support

	Beta	t	p-value	95% CI	VIF	Adjusted R^2
Colleges have a responsibility to lessen the risk of tobacco addiction by adopting policies that discourage tobacco use						.10
Constant	3.85	11.47	< .001*	3.18, 4.61		
Sexual minority (ref: heterosexual)	-.41	-2.37	.02*	-.75, -.07	1.06	
Non-white (ref: white)	.28	1.82	.07	-.02, .58	1.16	
Gender (ref: female)	-.04	-.25	.81	-.32, .27	1.1	
Age	-.001	-.07	.95	-.02, .02	1.06	
First-generation status (ref: non-first-generation student)	.04	-.25	.8	-.35, .27	1.11	
Part time student (ref: full-time student)	.05	.26	.8	-.35, .46	1.09	
Tobacco use (ref: non-user)	.04	.22	.83	-.37, .47	1.9	
Nicotine use (ref: non-user)	-.73	-3.73	< .001*	-1.11, -.34	1.82	
Colleges have a responsibility to adopt policies that ensure people have smoke-free air to breathe						.16
Constant	4.49	14.53	< .001*	3.88, 5.1		
Sexual minority (ref: heterosexual)	-.29	-2	.05*	-.58, -.004	1.06	
Non-white (ref: white)	.04	.28	.78	-.22, .29	1.16	
Gender (ref: female)	.04	.31	.76	-.21, .29	1.1	

Age	-.003	-.28	.78	-.02, .02	1.06	
First-generation status (ref: non-first-generation student)	.14	-1.01	.31	-.4, .13	1.1	
Part time student (ref: full-time student)	-.18	-1.02	.31	-.52, .17	1.09	
Tobacco use (ref: non-user)	-.08	-.44	.66	-.44, .28	1.9	
Nicotine use (ref: non-user)	-.72	-4.32	< .001*	-1.05, -.39	1.82	
Colleges should regulate tobacco use on campus						.15
Constant	3.49	9.57	< .001*	2.77, 4.21		
Sexual minority (ref: heterosexual)	-.31	-1.79	.08	-.65, .03	1.06	
Non-white (ref: white)	.17	1.14	.26	-.13, .48	1.16	
Gender (ref: female)	.1	.65	.52	-.2, .39	1.1	
Age	.02	1.61	.11	-.004, .04	1.06	
First-generation status (ref: non-first-generation student)	-.15	.98	.33	-.16, .47	1.11	
Part time student (ref: full-time student)	-.13	-.64	.52	-.54, .28	1.09	
Tobacco use (ref: non-user)	.08	.36	.72	-.34, .5	1.2	
Nicotine use (ref: non-user)	-1	-4.9	< .001*	-1.35, -.58	1.81	

*Indicates a p-value of 0.05 or less

4.3 Faculty

4.3.1 Pre-Implementation Findings

Faculty responses from the pre-implementation survey highlighted a single predictor of support throughout all three models, tobacco use. Individuals who reported using tobacco products within the past 30 days were less likely to support the TFCP compared to faculty who did not report use. In the first regression (table 5), tobacco users showed significantly lower levels of support ($b = -1.42$, $p < .001$) than non-users. The same was true for the second and third models with users showing decreased levels of support ($b = -1.6$, $p < .001$ and $b = -1.54$, $p < .001$ respectively). The included predictors explained 8%, 18%, and 14% of the variation in responses to the three survey items, respectively (table 5).

Table 5. Faculty Pre-Implementation Predictors of Support

	Beta	t	p-value	95% CI	VIF	Adjusted R^2
Colleges have a responsibility to lessen the risk of tobacco addiction by adopting policies that discourage tobacco use						0.08
Constant	4.17	11.47	< .001*	3.46, 4.9		
Sexual minority (ref: heterosexual)	-.002	-.01	.99	-.43, .43	1.05	
Non-white (ref: white)	.07	.4	.69	-.26, .4	1.03	
Male (ref: female)	-.04	-.26	.79	-.32, .25	1.06	
Age	-.004	-.75	.46	-.02, .01	1.17	
Employment status (ref: full-time employee)	-.14	-.36	.72	-.92, .63	1.03	
Position at UNLV (ref: administrative staff)	-.11	-.56	.57	-.48, .27	1.09	
Tobacco use (ref: non-user)	-1.42	-4.75	< .001*	-2.01, -.83	1.21	
Nicotine use (ref: non-user)	-.12	-.35	.73	-.79, .56	1.27	
Colleges have a responsibility to adopt policies that ensure people have smoke-free air to breathe						.182
Constant	4.25	13.9	< .001*	3.64, 4.85		
Sexual minority (ref: heterosexual)	-.08	-.44	.66	-.44, .28	1.05	
Non-white (ref: white)	.1	.68	.5	-.18, .37	1.03	
Male (ref: female)	.19	1.53	.13	-.05, .43	1.06	

Age	-.003	-.52	.61	-.01, .007	1.17	
Employment status (ref: full-time employee)	.05	.16	.87	-.6, .71	1.03	
Position at UNLV (ref: administrative staff)	.18	1.11	.27	-.14, .49	1.09	
Tobacco use (ref: non-user)	-1.6	-6.2	< .001*	-2.1, -1.07	1.21	
Nicotine use (ref: non-user)	-.52	-1.79	.08	-1.09, .05	1.27	
Colleges should regulate tobacco use on campus						.143
Constant	3.99	11.18	< .001*	3.23, 4.69		
Sexual minority (ref: heterosexual)	-.08	-.37	.71	-.5, .34	1.05	
Non-white (ref: white)	.08	.51	.61	-.24, .41	1.03	
Male (ref: female)	.24	1.7	.09	-.04, .52	1.06	
Age	-.003	-.59	.56	-.02, .01	1.17	
Employment status (ref: full-time employee)	-.12	-.31	.75	-.89, .64	1.03	
Position at UNLV (ref: administrative staff)	.32	1.7	.09	-.05, .68	1.09	
Tobacco use (ref: non-user)	-1.54	-5.2	< .001*	-2.12, -.95	1.21	
Nicotine use (ref: non-user)	.55	-1.62	.11	-1.22, .12	1.27	

*Indicates a p-value of 0.05 or less

4.3.2 Post-Implementation Findings

Responses from faculty in the post-survey yielded a variety of significant predictor variables in two of the three regression analyses. In the first model gauging support for TFCP using the statement "*Colleges have a responsibility to lessen the risk of tobacco addiction by adopting policies that discourage tobacco use,"* three variables were observed with p-values of less than 0.05. First, faculty who used tobacco products ($b = -1.01$, $p = .007$) within the past 30 days showed decreased levels of support for TFCP compared to their non-using counterparts. Furthermore, full-time employees were observed to have lower levels of support for the policy compared to part-time faculty ($b = .74$, $p = .05$). Finally, faculty who identified as a SGM showed higher levels of support for TFCP than heterosexual faculty ($b = .72$, $p = .008$). Overall, the model did show significance ($F(8, 151) = 2.85$, $p = .006$), however, these variables only accounted for 9% of the variance in terms of support.

Examination of faculty support regarding beliefs about colleges having the responsibility to provide clean air for people to breathe, showed overall model significance ($F(8, 152) = 6.43$, $p < .001$). However, the only predictor variable identified as statistically significant was tobacco use. Faculty who used tobacco products were less likely to show support for the policy ($b = -1.11$, $p < .001$) compared to faculty who did not use tobacco products. In total, variables included in this regression accounted for 21% of the variance, inferring various other predictors exist that were not examined here.

The final regression analysis conducted on faculty post-implementation—colleges regulating tobacco use—revealed identical significant predictor variables to the first regression. Aside from overall model significance ($F(8, 151) = 6.23$, $p < .001$), employment status, position at UNLV, tobacco, and nicotine use were all predictors of support for TFCP. Users of both

tobacco and nicotine products were less likely to support TFCP compared to faculty who did not use tobacco, with values of b = -1.08 and a p-value of < .001 and b = -.8 and p < .001, respectively. Further, differences were observed when it came to employment status, as those who were not full-time employees appeared to have higher levels of support for the TFCP than full-time faculty (b = .63, p = .05). Non-administrative faculty were also more likely to support TFCP compared to administrative faculty (b = .58, p = .02). Like the other regressions in this subsection, the adjusted R^2 value of .21, indicates that only 21% of the variability is accounted for by the predictor variables included in analyses. A breakdown of all predictor variables throughout the three models can be seen below in Table 6.

Table 6. Faculty Post-Implementation Predictors of Support

	Beta	t	p-value	95% CI	VIF	Adjusted R^2
Colleges have a responsibility to lessen the risk of tobacco addiction by adopting policies that discourage tobacco use						.09
Constant	3.9	8.05	< .001*	2.95, 4.9, 5.03		
Sexual minority (ref: heterosexual)	.72	2.76	.008*	.19, 1.26	1.23	
Non-white (ref: white)	-.22	-.91	.84	-.7, .26	1.32	
Male (ref: female)	-.01	-.06	.95	-.42, .4	1.11	
Age	-.009	-1.06	.29	-.03, .01	1.55	
Employment status (ref: full-time employee)	.74	1.99	.05*	.005, 1.45	1.56	
Position at UNLV (ref: administrative staff)	.39	1.33	.19	-.19, .98	1.03	
Tobacco use (ref: non-user)	-1.01	-2.72	.007*	-1.75, -.29	2.54	
Nicotine use (ref: non-user)	-.37	-.94	.35	-1.13, .4	2.54	
Colleges have a responsibility to adopt policies that ensure people have smoke-free air to breathe						.21
Constant	4.25	9.95	< .001*	3.4, 5.09		
Sexual minority (ref: heterosexual)	.01	.06	.96	-.46, .48	1.23	
Non-white (ref: white)	-.29	-1.38	.17	-.71, .13	1.32	
Male (ref: female)	.01	.08	.94	-.35, .37	1.11	

Age	-.005	-.68	.5	-.02, .01	1.55	
Employment status (ref: full-time employee)	-.16	-.48	.63	-.81, .5	1.56	
Position at UNLV (ref: administrative staff)	.48	1.84	.07	-.03, 1	1.03	
Tobacco use (ref: non-user)	-1.11	-3.4	< .001*	-1.76, -.46	2.54	
Nicotine use (ref: non-user)	-.22	.67	.51	-.9, .45	2.54	
Colleges should regulate tobacco use on campus						.21
Constant	4.22	10.35	< .001*	3.42, 5.03		
Sexual minority (ref: heterosexual)	.17	.76	.45	-.28, .62	1.23	
Non-white (ref: white)	.04	.21	.84	-.36, .44	1.32	
Male (ref: female)	-.15	-.85	.4	-.49, .2	1.11	
Age	-.008	-1.04	.3	-.02, .01	1.55	
Employment status (ref: full-time employee)	.63	2.02	.05*	.02, 1.25	1.56	
Position at UNLV (ref: administrative staff)	.58	2.33	.02*	.09, 1.07	1.03	
Tobacco use (ref: non-user)	-1.08	-3.43	< .001*	-1.69, -.46	2.54	
Nicotine use (ref: non-user)	-.8	-2.46	.02*	-1.45, -.16	2.54	

*Indicates a p-value of 0.05 or less

4.4 Staff

4.4.1 Pre-Implementation Findings

Results of pre-implementation analyses identify two key factors contributing to staff support for the TFCP. Both tobacco use and nicotine use were significantly associated with lower levels of support. In model 1, staff who used nicotine and/or tobacco products were less likely to show support compared to staff who did not use ($b = -.96$, $p = .001$; $b = -1.43$, $p < .001$). Despite the overall model showing significance ($F(8, 291) = 8.05$, $p < .001$), the low adjusted R^2 value of 0.159 indicated multiple other outside variables influenced staff levels of support. The same is true for model 2, in which only 19% of variability can be attributed to the predictor variables included. However, the overall model was significant ($F(8, 294) = 9.9$, $p < .001$). Like model 1, tobacco use within the past 30 days ($b = -1.49$, $p < .001$) and nicotine use within the past 30 days ($b = -.51$, $P = .04$) were associated with decreased support for the policy in model 2. Finally, model 3 showed a statistically significant association for tobacco ($b = -1.81$, $P < .001$) and nicotine use ($b = -1.01$, $p < .001$) regarding support for TFCP. This third model also yielded one of the highest variances, at 27%, indicating over one-fourth of support can be attributed to the predictor variables included in Table 7.

Table 7. Staff Pre-Implementation Predictors of Support

	Beta	t	p-value	95% CI	VIF	Adjusted R^2
Colleges have a responsibility to lessen the risk of tobacco addiction by adopting policies that discourage tobacco use						.159
Constant	3.74	11.46	< .001*	3.09, 4.34		
Sexual minority (ref: heterosexual)	.003	.02	.99	-.4, .40	1.09	
Non-white (Ref: white)	-.05	-.34	.74	-.33, .23	1.01	
Male (ref: female)	-.03	-.16	.87	.32, .28	1.14	
Age	-.002	-.28	.78	-.01, .01	1.06	
Employment status (ref: full-time employee)	.97	1.39	.17	-.4, 2.34	1.03	
Position at UNLV (ref: administrative staff)	.12	.86	.39	-.16, .4	1.07	
Tobacco use (ref: non-user)	-1.43	-6.12	< .001*	-1.9, -.98	1.09	
Nicotine use (ref: non-user)	-.96	-3.28	.001*	-1.53, -.38	1.04	
Colleges have a responsibility to adopt policies that ensure people have smoke-free air to breathe						.19
Constant	4.34	15.14	< .001*	3.77, 4.9		
Sexual minority (ref: heterosexual)	-.06	-.34	.74	-.41, .29	1.09	
Non-white (Ref: white)	.006	.05	.96	-.24, .25	1.01	
Male (ref: female)	.08	.56	.58	-.19, .34	1.13	

Age	-.01	-1.46	.15	-.02, .003	1.06	
Employment status (ref: full-time employee)	.79	1.28	.2	-.42, 2	1.03	
Position at UNLV (ref: administrative staff)	.23	1.87	.06	-.01, .48	1.07	
Tobacco use (ref: non-user)	-1.49	-7.24	< .001*	-1.9, -1.1	1.08	
Nicotine use (ref: non-user)	-.51	-1.99	.04*	-1.02, -.006	1.04	
Colleges should regulate tobacco use on campus						.27
Constant	4.21	14.34	< .001*	3.63, 4.78		
Sexual minority (ref: heterosexual)	.22	1.22	.22	-.13, .58	1.09	
Non-white (Ref: white)	.05	.42	.67	-.2, .31	1.01	
Male (ref: female)	-.06	-.41	.67	-.33, .21	1.13	
Age	-.01	-1.86	.06	-.02, .001	1.06	
Employment status (ref: full-time employee)	.68	1.09	.28	-.55, 1.9	1.03	
Position at UNLV (ref: administrative staff)	.08	.59	.55	-.17, .32	1.08	
Tobacco use (ref: non-user)	-1.81	-8.66	< .001*	-2.22, -1.4	1.08	
Nicotine use (ref: non-user)	-1.01	-3.88	< .001*	-1.53, -.5	1.04	

*Indicates a p-value of 0.05 or less

4.4.2 Post-Implementation Findings

Results from staff respondents in the post-implementation analyses differed from the staff population respondents in the pre-implementation analysis. In the first model, when staff were asked about beliefs regarding colleges' responsibility to adopt policies to reduce risk of tobacco addiction, the only significant predictor of support came from tobacco use ($b = -.8$, $p = .002$). Staff who used tobacco products were associated with a decrease in support for TFCP compared to their non-using counterparts. Furthermore, only 12% of variability in the model can be attributed to the predictors use, indicating multiple other influences exist. Although the model itself was significant ($F(98, 199) = 4.5$, $p < .001$) none of the other predictor variables proved to be significant in determining staff support for the TFCP.

When staff were questioned about colleges having the responsibility to adopt policies ensuring people have clean air to breathe, three of the predictor variables were identified as significant. First, tobacco use within the past 30 days revealed a decreased association with support for TFCP ($b = -1.03$, $p < .001$). Next, nicotine use within the past 30 days also showed to be associated with decreased levels of support compared to non-users ($b = -.48$, $p = .03$). In addition, compared to full-time employees, staff who were part-time were more likely to support the policy ($b = .53$, $p = .03$). Here, over a quarter (26%) of the variability was attributed to the included predictor variables and the model itself was significant ($F(8, 199) = 9.88$, $p < .001$).

In the final post-implementation analysis regarding support for colleges regulating tobacco use on campus, identifying as a SGM was the only significant predictor of support. Staff who did not identify as heterosexual showed decreased support for the TFCP compared to their straight-identifying staff counterparts ($b = -.42$, $p = .05$). However, these predictor variables only captured a small portion of factors contributing to staff support (adjusted $R^2 = .08$). The overall

model was significant with a p-value of .002 and $F(8, 199) = 3.23$. Table 8 shows the influence of all the variables used throughout each model as well as model significance.

Table 8. Staff Post-Implementation Predictors of Support

	Beta	t	p-value	95% CI	VIF	Adjusted R^2
Colleges have a responsibility to lessen the risk of tobacco addiction by adopting policies that discourage tobacco use						.12
Constant	3.67	9.73	< .001*	2.93, 4.41		
Sexual minority (ref: heterosexual)	-.07	-.31	.76	-.49, .35	1.2	
Non-white (Ref: white)	.29	1.65	.1	-.06, .64	1.14	
Male (ref: female)	-.21	-1.15	.25	-.56, .15	1.21	
Age	0	.05	.96	-.02, .02	1.65	
Employment status (ref: full-time employee)	-.03	-.09	.93	-.56, .51	1.65	
Position at UNLV (ref: administrative staff)	.11	.56	.57	-.26, .48	1.26	
Tobacco use	-.8	-.31	.002*	-1.3, -.3	2.27	
Nicotine use	-.24	-.09	.33	-.71, .24	1.99	
Colleges have a responsibility to adopt policies that ensure people have smoke-free air to breathe						.26
Constant	4.15	12.12	< .001*	3.48, 4.82		
Sexual minority (ref: heterosexual)	-.1	-.5	.62	-.48, .28	1.2	
Non-white (Ref: white)	-.12	-.75	.46	-.44, .2	1.14	

Male (ref: female)	-.09	-.56	.57	-.41, .23	1.21	
Age	.004	.5	.62	-.01, .02	1.65	
Employment status (ref: full-time employee)	.53	2.17	.03*	.05, 1.01	1.65	
Position at UNLV (ref: administrative staff)	-.003	-.02	.99	-.34, .33	1.26	
Tobacco use	-1.03	-4.47	< .001 *	-1.48, -.58	2.27	
Nicotine use	-.48	-2.21	.03*	-.91, -.05	1.99	
Colleges should regulate tobacco use on campus						.08
Constant	4.2	11.07	< .001*	3.45, 4.95		
Sexual minority (ref: heterosexual)	-.42	-1.97	.05*	-.84, .001	1.2	
Non-white (Ref: white)	-.03	-.17	.87	-.38, .32	1.14	
Male (ref: female)	-.1	-.56	.58	-.46, .26	1.21	
Age	-.004	-.48	.63	-.02, .01	1.65	
Employment status (ref: full-time employee)	.12	.43	.67	-.42, .65	1.65	
Position at UNLV (ref: administrative staff)	-.02	-.1	.92	-.39, .35	1.26	
Tobacco use	-.4	-1.41	.16	-.86, .14	2.27	
Nicotine use	-.45	-1.9	.06	-.92, .02	1.99	

*Indicates a p-value of 0.05 or less.

4.5 Tobacco Product Quantity & Frequency Findings

Prevalence rates of tobacco and nicotine products among students, faculty, and staff pre- and post-implementation can be viewed below in Table 9. During the pre-implementation survey, staff had the highest rate of tobacco product use with 11.7% of staff using at least one tobacco product. Cigarettes were by far the most used product among all subgroups, with 8.9% of staff, 6% of students, and 5.4% of faculty reporting cigarette use within the past 30 days. For smokeless products, students by far had the largest proportion of users, with 17.3% of students reporting using within the last 30 days. The most common type of nicotine products for all subgroups was disposable and rechargeable e-cigarettes. About 5.3% of student users also reported using vapes for products other than nicotine (e.g., to vape marijuana).

The post-implementation survey yielded an increase in prevalence rates for both tobacco and nicotine products among all subgroups. Nearly 40% of faculty, 25% of staff, and 28% of students reported using a tobacco product within the last 30 days. Every type of tobacco product in Table 9 showed an increase in use for all three subgroups. Cigarettes remained the most frequently used tobacco product with 21.1% of students, 17.1% of faculty, and 23.4% of staff using within the past 30 days. For nicotine products, rates of use also substantially increased with nearly 37% of students, 20% of faculty, and 36% of staff reporting use. Rechargeable and disposable e-cigarettes remained the most frequently used products among all subgroups.

Full results of Pearson's chi-square tests showed significant differences between tobacco and nicotine product use pre- and post-implementation of UNLV TFCP for student, faculty, and staff populations. The post-survey student population evidenced significantly higher rates of use for tobacco products ($\chi 2 = 44.2$ (df = 1, $N = 699$), $p < .001$) and nicotine products ($\chi 2 = 33.42$ (df = 1, $N = 699$), $p < .001$) compared to the pre-survey student population. Similar significance

was found in the faculty population with post-survey faculty having proportionally more users than the pre-survey faculty for both tobacco ($\chi 2 = 30.78$ (df = 1, $N = 516$), $p < .001$) and nicotine ($\chi 2 = 25.49$ (df = 1, $N = 516$), $p < .001$) products. Finally, staff also showed significant differences in the proportion of users pre- and post-implementation for both tobacco ($\chi 2 = 54.45$ (df = 1, $N = 597$), $p < .001$) and nicotine ($\chi 2 = 79.99$ (df = 1, $N = 597$), $p < .001$) products.

Table 9. Tobacco and Nicotine Product Prevalence Rates Pre- and Post-Implementation

	Pre-Survey—Spring 2022 n (%)			Post-Survey—Fall 2022 n (%)		
	Students	**Faculty**	**Staff**	**Students**	**Faculty**	**Staff**
Tobacco products						
None	412 (91.2)	295 (93.1)	316 (88.3)	178 (72.1)	151 (75.9)	150 (62.8)
Cigarettes	27 (6)	17 (5.4)	32 (8.9)	52 (21.1)	34 (17.1)	56 (23.4)
Cigars	6 (1.3)	3 (0.9)	7 (2)	16 (6.5)	4 (2)	19 (7.9)
Cigarillos	3 (0.7)	0	3 (0.8)	17 (6.9)	6 (3)	11 (4.6)
Pipe with tobacco	2 (0.4)	1 (0.3)	2 (0.6)	13 (5.3)	5 (2.5)	9 (3.8)
Smokeless tobacco (chew)	1 (0.2)	4 (1.3)	4 (1.1)	14 (5.7)	5 (2.5)	8 (3.3)
Hookah with tobacco	9 (2)	0	1 (0.3)	4 (1.6)	7 (3.5)	11 (4.6)
Nicotine products						
None	347 (82.7)	299 (94.3)	334 (93.3)	156 (63.2)	159 (79.9)	154 (64.4)
Rechargeable e-cig	30 (6.6)	6 (1.9)	10 (2.8)	48 (19.4)	18 (9)	34 (14.2)
Disposable e-cig	33 (7.3)	5 (1.6)	5 (1.4)	44 (17.8)	14 (7)	35 (14.6)
Medium size tank device	10 (2.2)	3 (0.9)	6 (1.7)	11 (4.5)	8 (4)	21 (8.8)
Large size tank device	4 (0.9)	2 (0.6)	6 (1.7)	10 (4)	5 (2.5)	9 (3.8)
E-cigar	4 (0.9)	1 (0.3)	0	13 (5.3)	3 (1.5)	13 (5.4)

E-pipe	2 (0.4)	1 (0.3)	0	11 (4.5)	4 (2)	8 (3.3)
I have used these products but not to vape nicotine	24 (5.3)	8 (2.5)	6 (1.7)	9 (3.6)	6 (3)	12 (5)
Other	1 (0.2)	0	0	1 (0.4)	1 (0.5)	0

4.6 Tobacco Attitude Findings

Although enforcement of UNLV TFCP is not the focus of this study, two questions surrounding enforcement were asked to all participants. First respondents were asked*, "In your opinion, how difficult would it be to enforce a tobacco-free policy on your campus?"* with answers options being not difficult at all, fairly difficult, very difficult, and unsure. Prior to policy adoption, the most popular answer from students, faculty, and staff was "fairly difficult" with 45.6% of students, 42.6% of faculty, and 40.8% of staff selecting that response option. The most frequently selected answer in the pos-implementation was also "fairly difficult" with 44.9% of students, 39.2% of faculty, and 43.9% of staff choosing this response. When it came to who respondents thought should be responsible for enforcing the TFCP on UNLV's campus, students in both the pre- and post-implementation surveys most frequently felt that school administrators were responsible followed by campus police. On the contrary, faculty and staff from both surveys most felt that campus police should be responsible for enforcement, followed by school administrators. The final tobacco attitude question not included in regression analyses asked respondents if they felt it was the school's responsibility to enact a TFCP that protects individuals from secondhand smoke. The majority of respondents (64% or more) in all three subpopulations during both pre and post data collection points said "no." Table 10 below shows the breakdown by subgroup for the three statements discussed in this section.

Table 10. Tobacco Attitudes Pre- and Post-Implementation

	Pre-survey—Spring 2022 n (%)			Post-survey—Fall 2022 n (%)		
	Students	**Faculty**	**Staff**	**Students**	**Faculty**	**Staff**
In your opinion, how difficult would it be to enforce a tobacco-free policy on your campus? (M, SD*)*	**2.3, 0.5**	**2.2, 0.9**	**2.4, 0.9**	**2.2, 0.8**	**2.3, 0.9**	**2.4, 0.9**
Not difficult at all	76 (16.8)	70 (22.1)	53 (14.8)	43 (17.4)	36 (18.1)	36 (15.1)
Fairly difficult	206 (45.6)	135 (42.6)	146 (40.8)	111 (44.9)	78 (39.2)	105 (43.9)
Very difficult	96 (21.2)	64 (20.2)	89 (24.9)	67 (27.1)	47 (23.6)	68 (28.5)
Unsure	48 (10.6)	31 (9.8)	42 (11.7)	12 (4.9)	24 (12.1)	25 (10.5)
Do you think it is the responsibility of the school's administration to enact a policy that protects the campus community from exposure to secondhand smoke?	**2, 0.5**	**1.9, 0.5**	**1.9, 0.5**	**2, 0.5**	**1.9, 0.5**	**1.9, 0.6**
Yes	54 (11.9)	40 (12.6)	66 (18.4)	24 (9.7)	29 (14.6)	49 (20.5)
No	323 (71.5)	239 (75.4)	238 (66.5)	184 (74.5)	146 (73.4)	154 (64.4)
Unsure	59 (13.1)	26 (8.2)	38 (10.6)	29 (11.7)	14 (7)	34 (14.2)
In your opinion, who should be responsible for enforcing a tobacco-free policy on campus?	**2.7, 1.5**	**3.2, 1.6**	**3.3, 1.6**	**2.6, 1.5**	**3.1, 1.6**	**3.2, 1.5**
School administrators	169 (37.4)	89 (28.1)	98 (27.4)	88 (35.6)	54 (27.1)	58 (24.3)

Faculty and instructors	36 (8)	9 (2.8)	6 (1.7)	25 (10.1)	17 (8.5)	24 (10)
Students	46 (10.2)	12 (3.8)	9 (2.5)	27 (10.9)	11 (5.5)	17 (7.1)
Campus police	126 (27.9)	122 (38.5)	137 (38.3)	71 (28.7)	63 (31.7)	84 (35.1)
Other	49 (10.8)	67 (21.1)	79 (22.1)	21 (8.5)	40 (20.1)	51 (21.3)

When looking at support for UNLV's TFCP, rates were examined among users and non-users separately at both points of data collection. In both the pre- and post-implementation groups we can see that non-users consistently had higher rates of support than individuals who had used nicotine and/or tobacco products within the past 30 days. The highest average rates of support for all three subgroups (pre and post) was derived from the statement "colleges have the responsibility to adopt policies that ensure people have smoke-free air to breathe." This result means that respondents most frequently strongly agreed with that statement. Results from other statements gauging support for UNLV TFCP can be seen in Table 11 below.

Table 11. Support for TFCP Among Users Versus Non-Users

Non-users	**Pre-Implementation**	**Post-implementation**	**t**
Colleges have a responsibility to lessen the risk of tobacco addiction by adopting policies that discourage tobacco use.	M=3.78, SD=1.11	M=3.75, SD=1.16	10.45
Colleges have a responsibility to adopt policies that ensure people have smoke-free air to breathe.	M=4.2, SD=.93	M=4.19, SD=1.01	12.65
Colleges should regulate tobacco use on campus	M=3.98, SD=1.1	M=4, SD=1.13	11.96
Users (nicotine)	**Pre-Implementation**	**Post-implementation**	**t**
Colleges have a responsibility to lessen the risk of tobacco addiction by adopting policies that discourage tobacco use.	M=2.95, SD=1.21	M=3.07, SD=1.18	6.68
Colleges have a responsibility to adopt policies that ensure people have smoke-free air to breathe.	M=3.38, SD=1.15	M=3.21, SD=1.11	10.58
Colleges should regulate tobacco use on campus	M=2.98, SD=1.29	M=3.17, SD=1.15	9.02
Users (tobacco)	**Pre-Implementation**	**Post-implementation**	**t**
Colleges have a responsibility to lessen the risk of tobacco addiction by adopting policies that discourage tobacco use.	M=2.52, SD=1.25	M=3.01, SD=1.23	7.45
Colleges have a responsibility to adopt policies that ensure people have smoke-free air to breathe.	M=2.87, SD=1.33	M=3.1, SD=1.16	12.19
Colleges should regulate tobacco use on campus	M=2.54, SD=1.34	M=3.2, SD=1.19	8.18

Chapter 5: Discussion

Identifying sociodemographic characteristics for support of a TFCP was one of the main goals of this study. Analyses showcased that various factors can be predictors of support among students, faculty, and staff including identifying as an SGM, being a user of tobacco and/or nicotine products, employment status, position at UNLV, and age. Our first two research questions supported alternative hypotheses in this study, as sociodemographic factors did differ among subpopulations pre- and post-implementation. Furthermore, as evidenced in the differing prevalence rates between pre and post survey respondents, our third research question was supported by the alternative hypothesis. Finally, our last research question's null hypothesis was supported as there appeared to be no difference in support among first-generation and non-first-generation students.

Understanding the impacts of a TFCP can be challenging because many factors influence how an individual perceives and subsequently supports issues such as implementation of a TFCP. As prior research has shown, both support and opposition to 100% smoke-free and tobacco-free exists among students, faculty, and staff within a university (Braverman et al., 2017). Likewise, beliefs regarding the university's responsibility to adopt, enact, and enforce these TFCP differ among students, faculty, and staff (Jazwa et al., 2021).

One impact that was not seen within this study that is common in the literature is the gender effect. None of the models among the three subgroups showed statistical significance when it came to gender. Previously conducted studies typically indicated that individuals who identify as female are more likely to show support for TFCP (Do et al., 2020; Braverman et al., 2015). Likewise, we did not find race or ethnicity to make a difference in terms of support for UNLV's TFCP. This finding contradicts the literature, in that we typically see those who identify

as non-White are more likely to support a TFCP compared to their White counterparts (Cooper et al., 2016). Due to the unique and extremely diverse campus community at UNLV, future research should further explore the relationship between gender, race, and support for TFCP to see if patterns or trends can be identified consistent with the literature.

Despite the prevalence rates of tobacco and nicotine products being higher post-implementation, the TFCP should not be considered as non-effective for a couple of reasons. One, because of the nature of cross-sectional studies, cause and effect relationships can not be determined and therefore showcase the need for further research to determine if those relationships exist. Next, there are a variety of other potential outcomes that could be measured to gauge rates of support. For example, exposure to secondhand smoke, knowledge and beliefs regarding the TFCP itself, change in social norms surrounding tobacco and nicotine use, rates of cessation efforts over time, and the impact on other substances could all be pathways of exploration that could produce different outcomes than evidenced here. Finally, the elevated prevalence rates of use post-implementation is not uncommon among universities and colleges that have implemented a TFCP. In fact, many universities have found that rates of use remain steady or even increase following adoption of a TFCP (Marion, Strand & Baldridge, 2021; Cabriales 2022).

Finally, the results in Table 11 suggest that support for a TFCP is user/non-user specific. This means that those who had not used in the past 30 days, in both the pre- and post-implementation samples evidenced higher rates of support for the policy. Likewise, when looking at those who used within the past 30 days, we see that support is consistently lower for both tobacco and nicotine products. Moreover, average support for the TFCP was slightly higher post-implementation for everyone. Although the sample populations were different, we see

overall rates of support did slightly increase post-implementation, a finding that is consistent with the literature (Glasgow et al., 2021; Figueroa et al., 2014). These findings suggest that when examining support for TFCP, future research should focus on the differences between those who use and those who don't as support can potentially be gauged by status of use.

5.1 Students

In both samples, students more frequently reported use within the past 30 days of nicotine products than they reported use of tobacco products. This is consistent with recent data, which shows that individuals aged 18-24 have higher prevalence rates of smokeless tobacco products than they do of traditional tobacco products (CDCTobaccoFree, 2023b). This finding is also consistent with studies at other universities showing higher rates of use of smokeless tobacco products among students compared to faculty and staff (Braverman et al., 2021). Furthermore, these results potentially support the perception of e-cigarettes being less harmful and therefore more frequently used. As noted by Hart and colleagues (2017), in a large cross-sectional study, around 50% of students felt e-cigarettes were harmful to health, despite nearly 80% acknowledging they are a tobacco-derived product.

When it comes to support of a comprehensive TFCP, some trends were identified in this study that mirror existing literature showcasing that users typically have lower rates of support for TFCP compared to non-users (Kecojevic et al., 2020). In this study, students in the pre-implementation group who used tobacco products within the past 30 days were associated with lowered levels of support compared to students who did not report use. Across all analyses, students who used nicotine products were less likely to support the TFCP compared to students who did not use (Cabriales et al., 2022). Not only was nicotine use a predictor of decreased support, but results were consistent across all six of the regression models run within the student

population. Therefore, future tobacco control efforts for students should include health education about the harms of e-cigarette use. This could help students understand that despite tobacco and nicotine products differing, they can deliver similar types of harm to not only themselves, but those around them.

In two of the post-implementation models for students, sexual orientation appeared to be a significant predictor of lower levels of support; meaning that compared to students who identify as heterosexual, students who identify as a SGM are less likely to support a TFCP. Although this finding has not been mentioned in existing literature, this study suggests that SGM students should be the focus of targeted intervention efforts moving forward. Tailoring control and cessation efforts to those identifying as SGM could potentially lead to increased support among UNLV students. Lastly, this study helped to contribute to a new understanding of first-generation college students' tobacco related beliefs and habits. Although none of the models showed this variable as a significant predictor of support, results suggest that compared to non-first-generation students, first-generation students have slightly lower levels of support for TFCP. Future research should examine first-generation students to gain a better understanding of how first-generation status impacts beliefs and patterns of behavior.

5.2 Faculty

One of the most frequently cited predictors of support for tobacco control policies, both inside and outside of academia, is tobacco and nicotine product use with users of both tobacco and nicotine products show lower levels of support for a TFCP than non-users (Braverman et al., 2021). In this study, faculty in both samples supported this claim in that tobacco use was the only significant predictor of opposition in all 6 of the regression models. Faculty who had used a tobacco product within the past 30 days were associated with lower levels of support for

UNLV's TFCP than their non-using faculty counterparts. These findings suggest that future tobacco control and cessation efforts for faculty should be centered around cigarette use, as cigarettes were the most frequently used product by this population.

The post-implementation faculty respondents showed vastly different predictors of support than the pre-implementation respondents. In two of the three models, position within the university and level of employment both significantly impacted support, whereas neither of them predicted support pre-implementation. This could be attributed to the populations being different, as well as having a significantly higher prevalence rates of users' post-implementation. Furthermore, nicotine was also a significant predictor of lower levels of support. As previously mentioned, this is consistent with the literature in that those who typically use tobacco and/or nicotine products are less likely to support a TFCP compared to those who do not (Cooper et al., 2016). Once again providing evidence that in addition to cessation efforts, health education surrounding the dangers of both nicotine and tobacco products should be delivered to ensure individuals are aware of the harms caused by both traditional and smokeless tobacco products, as many individuals perceive smokeless tobacco products as safe. However, not only are e-cigarettes associated with harmful outcomes, but their long-term health effects are not currently known (Bandi et al., 2022).

5.3 Staff

Like students and faculty, tobacco and nicotine product use were extremely higher for the post-implementation population. Significant differences in the prevalence rates of use post-implementation have been witnessed in previous studies, although not consistently (Marion, Strand, & Baldridge, 2021; Braverman et al., 2021). In addition, this highlights the need for future long-term studies on the impact of TFCP as prevalence rates vary post-implementation.

When it comes to staff and tobacco and/or nicotine use predicting support, findings were slightly different between the samples. In the pre-implementation sample, staff who used nicotine and/or tobacco products were significantly associated with lower levels of support for the policy. However, in the post-implementation sample, tobacco use was only a significant predictor of opposition for two of the models and nicotine use was for only one. Considering that users have consistently evidenced lower levels of support for TFCP (Gatto et al., 2018; Glasgow et al., 2021), cessation efforts should be a priority of future tobacco control efforts. Further, education and communication about what cessation resources exist and how to get them should be included because, as previously mentioned, tobacco control policies have been shown to increase cessation efforts and decrease rates of use, however individuals must know about the resources to take advantage of them (CDC, 2023).

One of the models in the post-implementation analyses showed that staff who identify as a SGM had lower levels of support for a TFCP compared to their heterosexual identifying counterparts. Likewise, one of the models showed that compared to full-time employees, part-time employees showed slightly higher levels of support for TFCP. Although neither of these predictors of support have been studied, especially within university staff, they provide potential to future areas of research. In addition, being that SGM was a predictor of lower rates of support for both students and staff, future intervention efforts should be tailored to those identifying as an SGM to increase rates of support across campus.

5.4 Limitations

The results of this study should be interpreted with the following limitations in mind. First, due to ongoing social distancing protocols during the first data collection period, UNLV's operations were hybrid (meaning classes and campus activities were offered virtually and in

person). However, in the Fall 2022 semester, most campus operations resumed in person status, which could have potentially impacted the results of this study. Second, the time between data collection points was not only short, but occurred immediately after the implementation of UNLV's TFCP which could have impacted results as the effect of the policy had not set in yet.

Due to the pre and post survey populations differing, a cause-and-effect relationship was not able to be identified and could have impacted the results. Therefore, these results may not be generalizable to the entire campus community for several reasons. First, while a random sampling approach for students was attempted our recruitment methods were supplemented with a convenience sampling approach. A convenience sampling approach was used for faculty and staff and therefore was not representative of faculty and staff populations. For example, in the pre-survey, there were only around 1% of individuals identifying as American Indian from each of the three subpopulations. However, in the post-survey 10% of the students, 10% of staff, and 5% of faculty identified as American Indian, providing evidence to the differing populations. Moreover, these rates in the post-survey evidence a rate that over-represents individuals identifying as American Indian, as UNLV reports show less than 1% population in student, faculty, and staff populations. However, it is essential to mention that due to the small sample sizes, there is potential that variables shown to be associated with tobacco use, beliefs, and behavior (e.g., tobacco and nicotine product use) may not have been accurately represented and therefore, results should be interpreted cautiously.

Next, the statistical analyses completed were unweighted, and therefore were not necessarily representative of the UNLV population. Furthermore, results would have been more robust if weights had been used, however, due to time constraints and lack of data, this was not feasible. Finally, the variables included in the regression models explained minimal variance in

the outcomes of interest, indicating that various other factors likely influence levels of support for students, faculty, and staff.

Chapter 6: Conclusion

This study helped identify predictors of support for a TFCP on a large urban university campus among various subgroups. Future research directions should focus on differences between traditional forms of tobacco use and smokeless forms of tobacco as the rationale behind these differences is still trying to be understood. Given that results do not show first-generation status to be a significant predictor of support, future research should explore other subgroups within a campus community. Finally, studies examining the long-term impacts of TFCP are needed as this is a gap in the research both in this study and in general. Regardless, future research can help to inform universities and colleges around the nation on how to efficiently adopt, implement, and enforce a TFCP.

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