

**A Report on Tobacco Control:
A Survey on
Tobacco Use and Control among University
Personnel in Tennessee**

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TOBACCO POLICY RESEARCH PROGRAM

Department of Health Services Management and Policy

College of Public Health

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Letter from the Principal Investigator

Tobacco use is a major public health problem in Tennessee, the United States (U.S.) and worldwide because it is addictive and imposes health and economic burden on governments. In 2010, the annual deaths from tobacco-induced diseases are over 9,800 in Tennessee, 443,000 in the U.S. and 5.4 million worldwide. Additionally, while the death toll of secondhand smoke (SHS) in Tennessee is not apparent, evidence suggests it respectively accounts for over 60,000 and 600,000 annual deaths in the U.S. and worldwide. In fact, the top three leading causes of death in Tennessee – cancer, cardiovascular and respiratory diseases – are tobacco-related. In addition to the negative health effects, the annual economic costs of tobacco use (direct medical cost and lost productivity) are approximately \$5 billion in Tennessee, \$193 billion to the federal government and \$500 billion worldwide.

While the adult smoking prevalence in the U.S. has decreased over the past decades from the highest points of over 50% in the 1960s to 19.3% in 2010, the prevalence in Tennessee remains high (20.1% in 2010; the 10th worst in the country), although the rate has been declining consistently since 2006 (26.7%, 4th worst in the country). The situation is even worse in Washington County, where the adult smoking prevalence rate is higher (28% in 2010). Additionally, the use of other tobacco products, including cigars and smokeless tobacco products such as dip and chewing tobacco has gained prominence in the country. For example, in 2007, the rate of cigar and smokeless tobacco use among men in Tennessee was 6.7% and 6.5%, respectively. A notable issue about tobacco use in the U.S. (also in Tennessee) is the relatively higher smoking prevalence among young adults aged 18-24 years old (20.1% vs. 19.3% in 2010). About a third of young adults in the U.S. attend colleges and universities where they are exposed to peer pressures and risky behaviors; and targeted by tobacco companies' promotional and marketing activities, generating the need for policy interventions.

While the Tennessee Department of Health's 5-year *Health Plan (2009-2013)* aims to reduce tobacco use, the *Healthy People 2020* aims to reduce national prevalence of adult smoking to 12%. Attaining this goal to alleviate the health and economic burden imposed on families, the state, and the country requires effective tobacco control policies, including health warnings on tobacco packages, advertising and promotional bans, excise tax increases on

tobacco products, smoke-free policies, public education, and cessation programs such as quit lines. In 2007, Tennessee took the right steps by enacting and implementing the Non-smokers Protection Act (NSPA), raising taxes on tobacco products by 42 cents and allocating \$10 million to fund the cessation and education program. While the NSPA made most enclosed and workplaces, including educational facilities smoke-free, it entails 10 exemptions, including age-restricted venues (i.e., bars), semi-enclosed spaces, nursing homes, private businesses employing three or fewer people, tobacco businesses and private clubs with no employees. Particularly, the exemption for businesses patronized by people over 21 years old protects venues important for tobacco companies, and at the same time, exposes young adults to tobacco use and SHS. Nonetheless, the Act was at the time one of the best among tobacco-producing states in the country, if not the best. However, after three years, the NSPA appears a bit obsolete as tobacco-producing states such as North Carolina have developed stronger smoke-free policies.

Tobacco policy in Tennessee remains preempted because the NSPA did not repeal the 1994 Prevention of Youth Access to Tobacco Act, which nullified local tobacco regulations after March 15, 1994; something the *Healthy People 2020* aims to eliminate throughout the country. As a result, one of the few venues beyond the state, for developing stronger policies is higher educational institutions, which were granted exemption from the state preemption in 2005. Consistent with this authority, East Tennessee State University (ETSU) enacted and implemented a “100% tobacco-free” policy in August 2008 that prohibited the use of all tobacco products (smoked and smokeless) from its premises or property except in private cars, and is applicable to employees, students and visitors. (As of May 2011, of about 100 higher educational institutions (public and private) only two institutions, ETSU and Milligan College, have a “100% tobacco-free” policy.)

In 2010, we designed a study to assess the prevalence of tobacco use among the ETSU employees and explore their knowledge, attitudes and behaviors toward tobacco use and control. We discovered relatively low prevalence rate of current tobacco use (9% of current cigarette smokers; 2.7% of current users of other tobacco products). The most interesting finding from the survey was that the tobacco-free policy was supported by 79% of the respondents, demonstrating a high level of receptivity for the policy among the ETSU employees. Additionally, the survey results showed that 20% of the respondents who smoked before August 2008, when ETSU

implemented the tobacco-free policy, had either quit smoking or reduced the number of cigarettes smoked. However, the problem was that an overwhelming 80.8% of respondents had observed other people using tobacco products out of their private cars, which means noncompliance and lack of enforcement, are drawbacks of the policy. Since about four-fifths of the respondents expressed support for the policy, it behooves on ETSU administration not only to embark on educational programs to inform employees, students and visitors about the policy to bolster compliance, but also institute reporting and enforcement mechanisms as the current system (voluntary compliance for employees and no penalties for students) is weak in ensuring compliance.

The ETSU tobacco-free policy, in spite of the problems with compliance, reporting and enforcement, provides a model for tobacco-free college and university policy for higher educational institutions in Tennessee and nationwide. The policy provides an additional impetus for people already motivated to quit using tobacco products, an avenue (privately owned cars) for those too dependent on or addicted to tobacco products to continue their habit, while at the same time, it progressively reduces the frequency of cigarettes by university employees and increases smoking cessation resources at colleges and universities. Above all, the policy protects nonsmokers from exposure to SHS and provides a clean environment devoid of cigarette butts and spits. Thus, based on the ETSU employees study, higher educational institutions that adopt similar tobacco-free policy should integrate strong reporting and enforcement mechanisms because a good policy without such mechanisms lead to high rate of noncompliance.

Sincerely,

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EXECUTIVE SUMMARY

Higher educational institutions provide a unique opportunity to develop and assess innovative tobacco control policies, while influencing health behaviors and norms of key population of young adults. College and university students are frequently exposed to smoking, peer pressure, and tobacco companies' marketing and promotional activities that increase the propensity to either continue or initiate tobacco use (smoked and smokeless). With an aim to promote a healthy and sanitary environment free from tobacco smoke and tobacco-related debris, East Tennessee State University (ETSU) implemented a "100% tobacco-free" policy that totally banned tobacco use (smoked and smokeless) on all its premises or property except in privately-owned cars. The policy is applicable to employees, students and visitors and has been in effect since August 11, 2008. In April 2010, an anonymous internet-based survey was conducted among all employees of ETSU located on five campuses in Tennessee (2,318) to understand their knowledge, attitudes and behaviors toward tobacco use and the ETSU tobacco-free policy. Of the 50.8% of the employees that responded to the survey, around 79% indicated support for the policy. At the same time, the survey revealed that 80.8% of the respondents had observed others smoking on campus. The main reason for this high level of noncompliance is that many of the respondents indicated that they had no idea how to deal with policy violation or where to report violation of the policy, i.e., weak reporting and enforcement mechanisms.

An implementation of a "100% tobacco-free" policy is a striking achievement for keeping people healthy on campus. However, drawbacks existed, which is due to the policy's attribute of voluntary compliance for employees, no penalty for students, and nothing on how to deal with visitors. The strong support for the policy and the high rate of noncompliance suggest the need for effective reporting and enforcement mechanisms as the policy has positive health impact by helping 20% of the respondents to either quit or reduce smoking.

This *Report* summarizes the results of the survey and outlines a list of key findings in the area of compliance and enforcement. In addendum, a series of recommendations are outlined not only to enhance voluntary compliance, but also to construct effective reporting and enforcement mechanisms.

INTRODUCTION

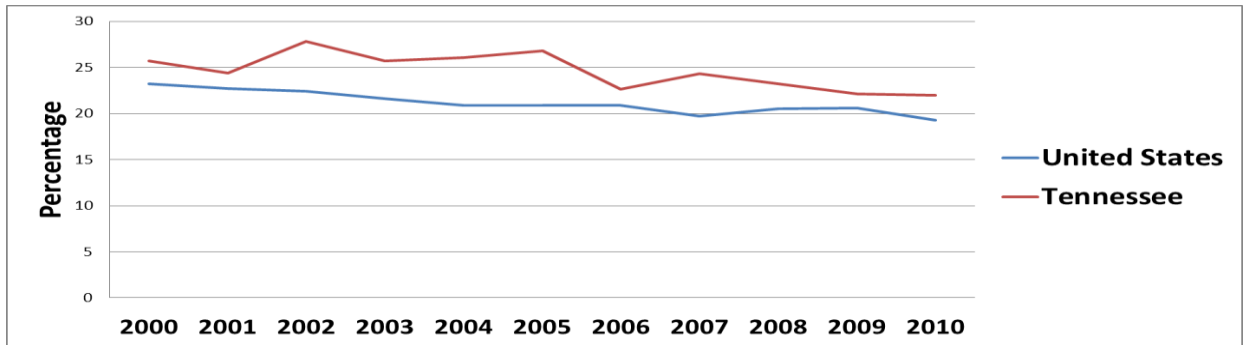
Tobacco use in the United States (U.S.) peaked in the 1960s, when over 50% of the adult population smoked cigarettes. Since then, tobacco use has consistently declined, reaching 19.3% in 2010 (Figure 1.1).¹ This picture should, however, be qualified because cigarette smoking among college students, most of whom are young adults between 18 and 24 years of age, increased in the 1990s.^{2,3} The experience of Tennessee, the third largest tobacco-producing state in the country, is similar in the sense of the general decline in smoking but different, because the adult smoking rate remained higher than the national average and the pattern of smoking prevalence during the same period was very volatile. In 2010, for example, nearly one-quarter (20.1%) of Tennessee adults smoked cigarettes, higher than the nation's smoking prevalence rate of 19.3% and *Healthy People 2020* target of 12%.⁴ This prevalence rate of smoking in Tennessee in 2010 was 10th highest in the country, an improvement from the 6th in 2009.⁵ Because dealing with this problem requires effective tobacco control, the overarching goal of the research was to investigate tobacco use and control in Tennessee to identify ways of using population-based approaches to reduce tobacco use and improve the health of Tennesseans, which was ranked 10th lowest in 2010.⁵

In addition to the general paucity of data on tobacco control research in tobacco-producing states in the U.S. and tobacco-free campuses in such states in particular, four main reasons led to this study. *First*, tobacco use is high in Tennessee; more so on college campuses (Figure 1.2), which means all avenues that could help drive the prevalence down should be explored. *Second*, Since 2005, higher educational institutions have been exempted from the state preemption of tobacco regulation⁶ introduced by the 1994 Prevention of Youth Access to Tobacco Act,⁷ which makes such institutions venues for developing and testing innovative tobacco control policies. *Third*, although the 2007 Tennessee Non-smokers Protection Act (NSPA)⁸ allows educational institutions to be smoke-free, only three (East Tennessee State University and Milligan College) out of about 100 higher educational institutions (public and private) have “100% tobacco-free” policy as of May 2011. *Fourth*, The East Tennessee State University (ETSU) tobacco-free policy,⁹ which bans tobacco use (smoked and smokeless) on its

premises or property except in private cars, is an integral part of state and national efforts to reduce tobacco use and provides lessons (positive and negative) for other institutions.

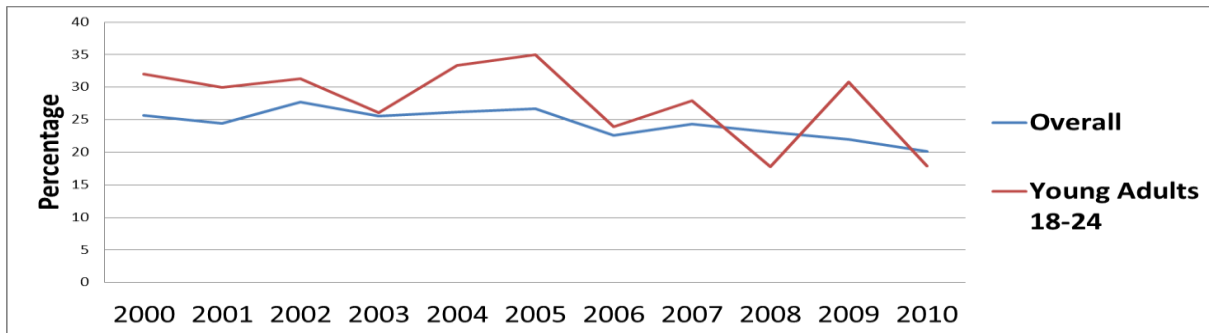
The *aim* of the research study was to assess the prevalence of tobacco use on ETSU employees, the most permanent segment of a university’s population; gauge the employees’ support for the ETSU policy and demonstrate the policy’s impact among them. While the policy has an overwhelming support and positive impact on health, it is confronted with the problem of noncompliance, primarily due to very limited reporting and enforcement mechanisms. Thus, other higher educational institutions in Tennessee and nationwide that adopt similar policy should include strong such mechanisms.

Figure 1.1: *Prevalence of smoking among adults --- Tennessee¹ and the United States², 1997-2010



Sources: ¹Behavioral Risk Factor Surveillance System and ²National Health Interview Survey
 *Prevalence of smoking measures the percentage of the population over 18 years of age who has smoked at least 100 cigarettes and currently smokes.

Figure 1.2: Prevalence of smoking among adults in Tennessee, 2000-2010



Source: Behavioral Risk Factor Surveillance System (BRFSS)

EAST TENNESSEE STATE UNIVERSITY TOBACCO-FREE POLICY AND POLICY CONTEXT

The ETSU Tobacco-Free Policy

On August 11, 2008, ETSU amended its previous tobacco control policy, which allowed smoking 50 feet away from buildings on campus to a “100% tobacco-free” policy (PPP-53) that prohibited the use of tobacco products (smoked and smokeless) by employees, students, and visitors on ETSU premises or property.⁹ The policy is in effect 24 hours a day, throughout the year and applies to all university buildings or grounds, ETSU-affiliated off-campus locations and clinics, and any building or car owned or leased or rented by ETSU, except in private cars. Additionally, the policy provides avenues for people who want to quit using tobacco products to seek cessation services. However, compliance with the policy is voluntary for employees, warnings (no penalties) for students, and nothing for visitors. Moreover, the policy does not have any obvious reporting or enforcement mechanism.

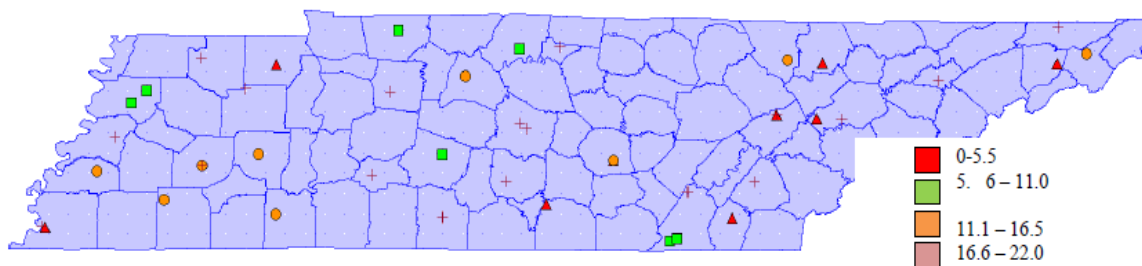
The Policy Context

ETSU is located in the Washington County of Tennessee, where the adult smoking rate is higher than the state average (28% vs. 20.1% in 2010) and the 31st highest in the state. ETSU was founded in Johnson City, the main campus, on October 2, 1911, and is the only four-year, comprehensive university in the region. As of April 2010, ETSU has four satellite campuses in Bristol (closed down in August 2010), Elizabethton, Greeneville and Kingsport (a second campus, Eastman, was opened for the 2010-11 academic year). ETSU offers 112 undergraduate, 75 masters and 12 doctoral programs in 8 colleges and 2 schools. It is the only university in Tennessee with fully accredited College of Public Health by Council on Education for Public Health. The total student and employee population at the time the survey was conducted in April 2010 was 14,678 and 2,318 respectively. The student population for the 2010-11 academic year was 15,234.

ETSU is part of the Tennessee Board of Regents (TBR) system, which consists of 45 institutions with annual enrollment of over 190,000 students in 2010, the 6th largest public higher education system in the U.S. A second statewide higher education system exists in the state, the University of Tennessee system (UT system), which consists of five institutions. In effect, there were 50 public institutions of higher education in Tennessee in 2010. Additionally, there were 50 private colleges and universities in the state in 2010, making a total of 100 institutions in the higher education system in the state.

While each of these higher educational institutions has some sort of policy to control tobacco use on campus, ETSU was the first within the TBR system to have “100% tobacco-free” policy.¹⁰ The coding of the policies using a College Tobacco Policy Index (CTPI) for evaluating the strength of college tobacco policies¹¹ showed that the policies of colleges and universities in the Tennessee higher education system (public and private) range from very weak to strong (Figure 2.1). Based on the CTPI, as of January 2011, only ETSU and Milligan College have strong policies, which is due to the fact that they are the only institutions out of the six institutions with 100% smoke-free policies in the state (the others were Belmont University, Libscomb University, Tennessee Technological University and Vanderbilt University Medical Center)¹² with 100% tobacco-free policies.¹³

Figure 2.1: Assessment of College Tobacco Policies in Tennessee, (n=94)



Note: Information related to 6 policies cannot be obtained

PROJECT DESCRIPTION

Statement of Purpose

Tobacco use rate among young adults 18-24 years of age is higher than the national average (20.1% vs. 19.3% in 2010).¹ The majority of college students are between 18 and 24 years of age, which represents the earliest years that the tobacco industry can legally try to lure new customers into smoking.¹⁴⁻¹⁷ Nationwide, while cigarette smoking among adults in general has consistently been decreasing over the several decades, that of college students (18-24) has been inconsistent, increasing by 28% between 1993 and 1999.^{2,18} Because tobacco use is the leading preventable cause of diseases such as lung cancer and cardiovascular disease, finding an effective solution to reduce tobacco use and exposure to secondhand smoke among a large amount of college students is needed.^{19,20}

University employees, on the other hand, mostly consist of a highly educated group with good socio-economic status (SES). While tobacco use data on university employees is scanty, the existing data suggests that between 2005 and 2010, the prevalence of current cigarette smoking declined steadily with increasing education—from 45.2% among adults with GED to 6.3% among those with graduate degree.¹ Adults with some college education (23.2%), associate degree (18.8%) and undergraduate degree (9.9%) were less likely to be current smokers.¹ Additionally, smoking prevalence is higher among adults living below the federal poverty line (28.9%) than those above it (18.3%).¹ Since the attitude and behavior of university personnel toward tobacco use, intentional or unintentional, influence student,²¹ a high level support of tobacco control certainly helps to prevent students' attempts to use tobacco; against the lure of promotional activities by tobacco manufactures as well. The ETSU tobacco-free policy was adopted about two years ago, when the survey was conducted. The study aimed to understand the knowledge, attitudes and behaviors of the university personnel, a relatively high educated population, toward it.

Specific Aims/Objectives

In February 2010, a research team, led by Dr. Hadii Mamudu (Assistant Professor at ETSU), Sreenivas P Veeranki (DrPH student, research assistant) and Yi He (MPH student, graduate assistant) began to work on a survey project about the ETSU tobacco-free policy, and identified university personnel as the targeted population. The following objectives emerged:

1. Assess prevalence of tobacco use among university personnel.
2. Analyze university personnel's knowledge, attitudes and behaviors toward the 100% tobacco-free policy.
3. Demonstrate the importance of tobacco-free policy to reduce tobacco use.
4. Identify the gap between support for the tobacco-free policy and compliance, and how to close such gap.
5. Elevate the issue of tobacco use and control in ETSU's agenda and send messages to relevant community that ETSU is an institution with a healthier environment.
6. Develop possible recommendations tailored to the current tobacco-free policy, thereby demonstrating ETSU as a model of a 100% tobacco-free campus in Tennessee and nationwide.

Steps in conducting the project

The detailed steps of the study are addressed below:

1. *Plan study*

The planning for the study started in January 2010. The combination of scanty data on university, the influence of university personnel behavior and attitude on students, and the existence of 100% tobacco-free policy at ETSU generated the need to conduct an assessment of support for 100% tobacco-free policy among the university employees and analyze their knowledge, attitudes, behaviors, awareness and compliance with the policy. We decided to use Internet-based survey for the study.

2. *Develop survey instrument*

The survey instrument was developed from January through March 2010. The survey questionnaire was developed based on the Global Tobacco Surveillance System Collaborative Group, consisting of the World Health Organization (WHO), the U.S. Centers for Disease Control and Prevention, the Canadian Public Health Association and other collaborators.²²⁻²⁴

Questions were categorized and focused on the following sections:

- (a) Demographic information (age, gender, race and ethnicity),
- (b) Tobacco use behavior (smoke and smokeless)
- (c) Knowledge of tobacco use (whether harmful to people)
- (d) Awareness of ETSU employee about the tobacco-free policy
- (e) Attitude toward the tobacco-free policy
- (f) Compliance with the tobacco-free policy
- (g) Impact of the tobacco-free policy
- (h) Enforcement of the tobacco-free policy.

The beginning of the survey was an informed consent (See Appendix A), requiring respondents to confirm that they were currently ETSU employees and older than 18 year-old. As an incentive, at the end of the survey, participants were asked to voluntarily participate in a draw (See Appendix B).

3. *Obtain Institutional Review Board of ETSU approval for the study (March 2010):*

In March the study was submitted to Institutional Review Board of ETSU and was approved on March 31.

4. *Advertise the study:*

In April 2010, after getting the IRB approval, to increase the response rate for the study, we embarked on an aggressive advertisement for the survey by posting more than 100 flyers throughout all campuses. Additionally, miniature copies of the flyer were placed in the mailbox of almost all the employees.

5. Upload the survey

In April 2010, the survey instrument was uploaded into the ETSU Quillen College of Medicine Survey system, with necessary skip logics and other technical attributes. A pilot test has been conducted among our colleagues before it was sent to everyone to determine the time to be taken to complete, the ease of answering the questionnaire, proper sequencing of questions and logic between the sections of the instrument.

6. Activate the survey

The survey was activated on April 8, 2010, and made available through ETSU Quillen College of Medicine's website. Afterwards, an invitation letter (with informed consent and survey link) to participate in the survey was sent to all ETSU employees via email and the office of the provost. One reminder email was sent to all employees after 14 days of survey activation on April 22, 2010.

7. Deactivate the survey

On May 3, 2010, the survey was deactivated, 26 days after being activated. The internet-based responses were exported to Statistical Analysis Software (SAS) for analysis.

8. Select winners for the lottery

After deactivation, winners of the draw were selected. 872 of the respondents (75%) entered the draw by providing their contact information (email address). The selection of the winners was performed by Kathryn Lambert, a federal work-study student at the Department of Health Services Administration at the time, through a lottery process, that is, random picks. Subsequently, Carolyn Casto, the Executive Aide at the Department of Health Services Administration handled everything concerning the disbursement of the check (\$50) to the 20 winners. The researchers (Dr. Mamudu, Veeranki, and He), were not involved in this process.

9. Analyze the data

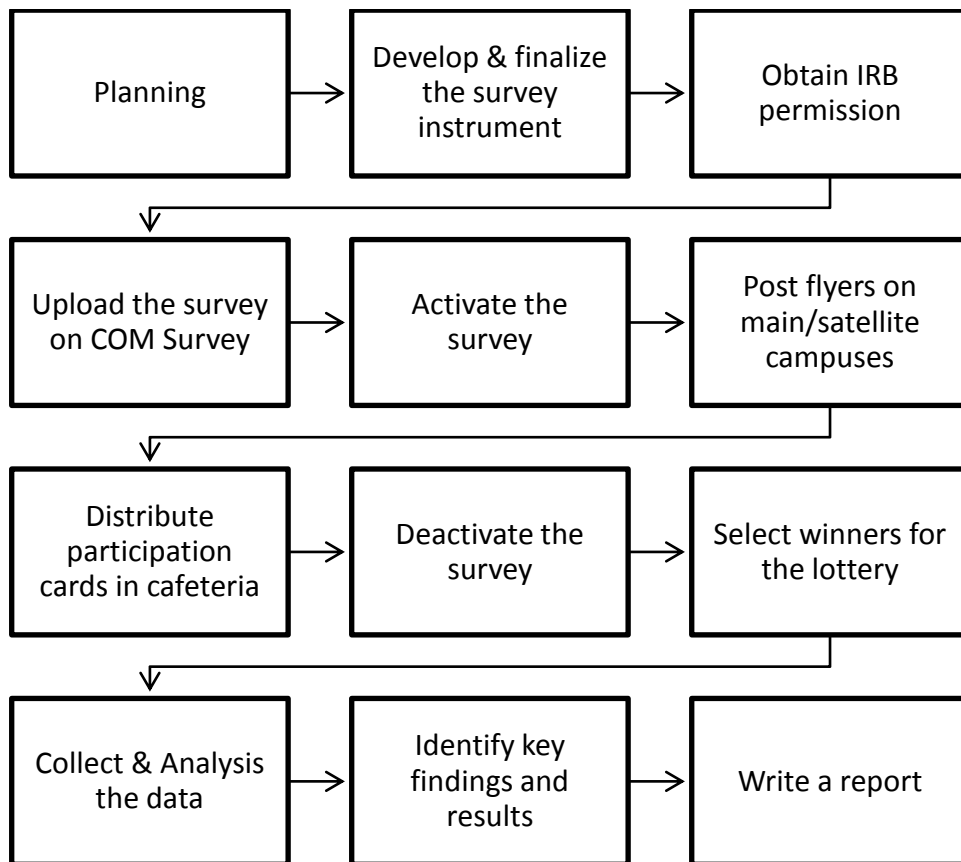
The exported data to SAS was cleaned for non-responses and duplicates, yielding 1,177 (response rate of 50.8%) for analysis. Descriptive statistics (univariate and bivariate analyses) using frequencies and percentages were performed to determine tobacco prevalence among the

university personnel across demographic, employment status, and professional affiliation categories. The data was analyzed using SAS version 9.2.

10. *Write a report*

A report based on the entire survey was written.

Figure 3.1: Steps in the Project



RESULTS

Demographics Characteristics of Respondents

Of the 2,318 university employees that received the survey, a total of 1,344 (58%) responded. After cleaning the original data for non-responses, a sample size of 1,177 (50.8% of the total population) was used for the analysis. Of these total respondents, 67% were females and 31.2% were males. Caucasians/whites consisted of 89.5% of the respondents and other racial categories (Asians, Blacks or African Americans, Hispanics, and Native Americans or Alaskan Natives) were 10.5%.

Figures 4.1, 4.2 and 4.3 show the age distribution, employment status and professional affiliations of respondents.

Figure 4.1: Age distribution of survey respondents (n=1,177)

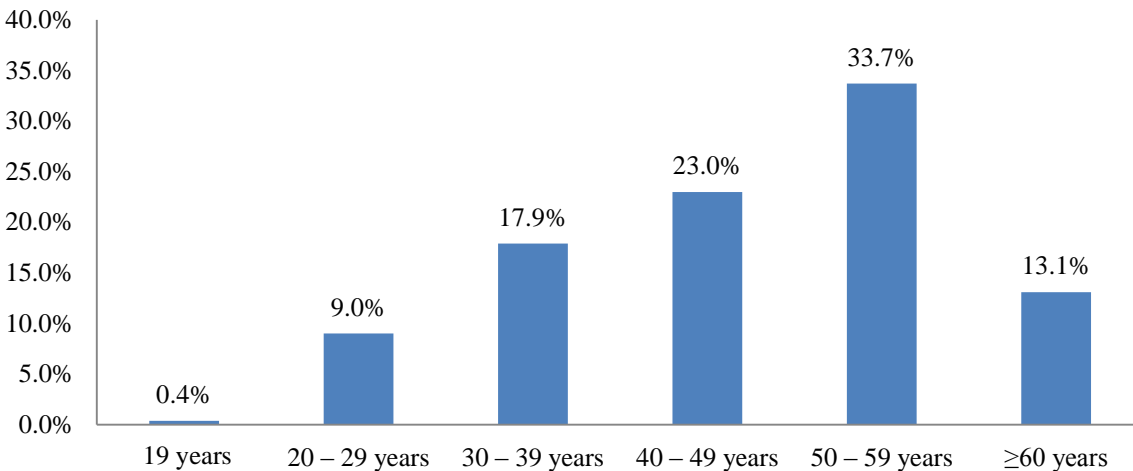


Figure 4.2: Employment status of survey respondents (n=1,177)

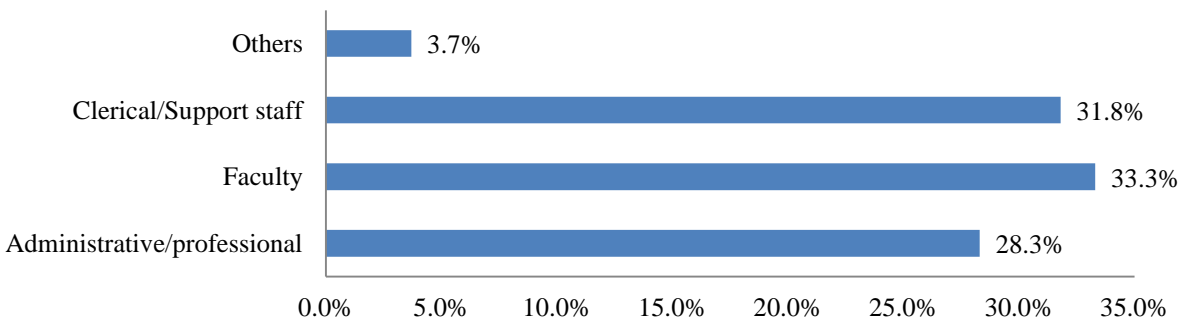
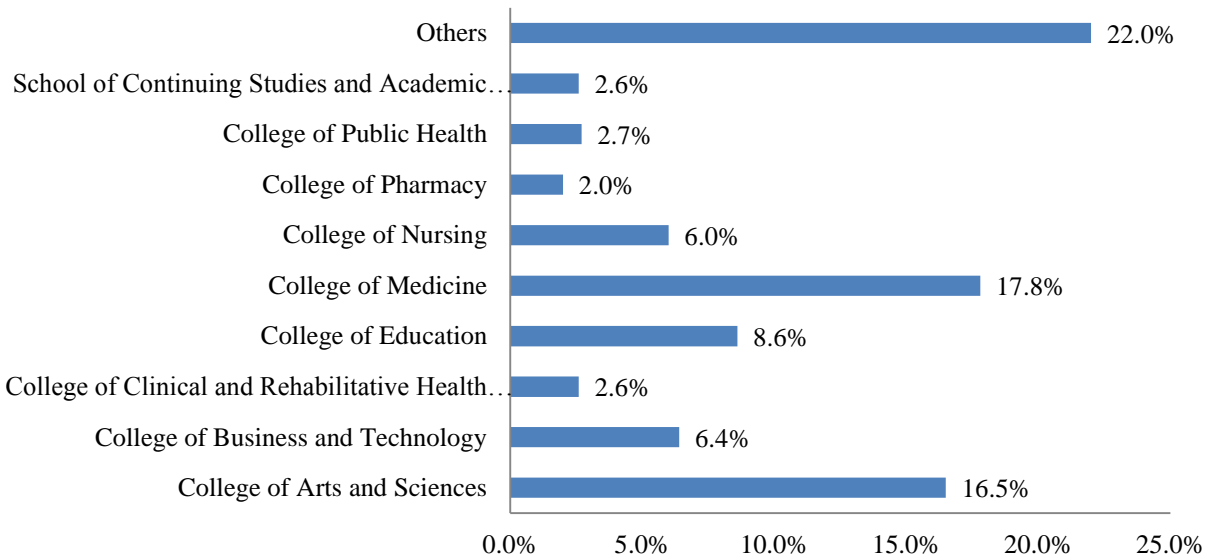


Figure 4.3: Professional affiliation of survey respondents (n=1,177)



Tobacco Use Behavior of Respondents

Overall, tobacco use among the ETSU employees (Figures 4.1-4.44) was lower than the state (22% in 2009) or Washington County (28.9%) average. The detailed breakdown of tobacco use among the ETSU employees that responded to the survey has been shown in Table 1. Among current cigarette smokers (9%; Figure 4.4), 37.7% reported that they used Marlboro and 10.4% used Camel. With respect to the use of other tobacco products, the respondents reported that they had no preferred product.

The majority of current cigarette smokers (79.2%) smoked many times in a day. However, 60.4% of them smoked less than one pack of cigarettes a day, and 37.7% of them used 1 – 2 packs a day, less than 0.1% indicated that they smoked more than 5 packs a day. Before August 2008, when ETSU tobacco-free policy was implemented, 38.5% of cigarette smokers reported that they smoked more than 1 pack in a day, which has decreased to 29.8% at the time of the survey in April 2010.

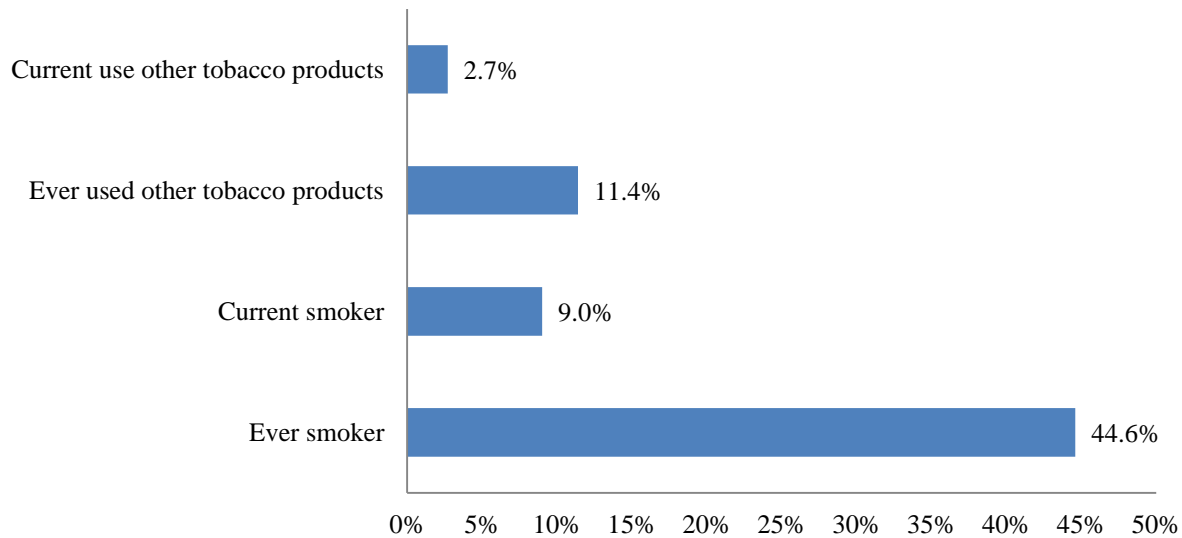
An overwhelming 85.3% of current smokers indicated they have ever tried to quit, 62.8% of them have made more than one attempt.

Table 1: Characteristics of survey participants (n=1,177)

Characteristics	Current smoker		Ever smoker	
	Yes n=106	No n=1,071	Yes n=525	No n=623
<i>Age</i>	(n %)	(n %)	(n %)	(n %)
19 years	0.0	0.5	0.2	0.6
20-29 years	7.5	9.2	9.9	8.3
30-39 years	34.0	16.3	20	15.9
40-49 years	23.6	23.0	21.1	25.7
50-59 years	22.6	34.8	32.8	36.0
> 60 years	9.4	13.4	14.3	12.7
<i>Gender</i>				
Female	64.2	67.3	66.1	69.0
Male	34.0	30.9	33.1	30.5
<i>Race</i>				
American Indian or Alaska Native	1.9	0.3	0.4	0.5
Asian	0.9	2.4	1.9	2.7
Black or African American	2.8	3.8	3.8	3.7
Caucasian/White	91.5	89.3	91.2	91.2
Hispanic	0.0	1.1	1.5	0.6
<i>Employment status</i>				
Faculty	22.6	34.4	29.0	38.4
Administrator/Professional	25.5	28.6	29.3	28.3
Clerical/Support staff	46.2	30.3	36.6	28.3
Others	3.8	3.6	3.2	3.7
<i>Professional Affiliation</i>				
College of Medicine	16.0	17.9	17.3	18.8
College of Arts and Sciences	23.6	15.8	16.2	17.3
College of Education	2.8	9.2	7.8	9.5
College of Business and Technology	4.7	6.5	6.5	6.6
College of Nursing	2.8	6.3	5.1	7.1
College of Public Health	0.0	3.0	2.5	3.0
College of Clinical and Rehabilitative Health Sciences	1.9	2.7	2.9	2.6
School of Continuing Studies and Academic Outreach	3.8	2.4	2.5	2.6
College of Pharmacy	0.9	2.1	1.7	2.4
Others	27.4	21.6	24.8	20.7

Characteristics	Current users of other tobacco products		Ever users of other tobacco products	
	Yes (n=32)	No (n=104)	Yes (n=134)	No (n=387)
<i>Age</i>	(n %)	(n %)	(n %)	(n %)
19 years	0	0	0	0.3
20-29 years	9.4	15.4	14.2	8.5
30-39 years	21.9	19.2	20.1	21.2
40-49 years	25	18.3	20.1	21.2
50-59 years	25	31.7	29.1	34.1
> 60 years	18.8	14.4	15.7	13.7
<i>Gender</i>				
Female	3.1	25.9	20.1	82.9
Male	96.9	73.1	79.1	16.5
<i>Race</i>				
American Indian or Alaska Native	3.1	0	0.7	0.3
Asian	0	2.9	1.5	2.1
Black or African American	9.4	2.9	4.5	3.9
Caucasian/White	84.4	93.2	91.8	91.2
Hispanic	0	0	0	2.1
<i>Employment status</i>				
Faculty	53.1	39.4	41.8	23.5
Administrator/Professional	25	29.8	29.1	29.9
Clerical/Support staff	12.5	26.9	23.9	41.6
Others	6.3	3.8%	4.5	2.8
<i>Professional Affiliation</i>				
College of Medicine	15.6	15.4	14.9	18.3
College of Arts and Sciences	15.6	21.2	20.1	14.2
College of Education	9.4	6.7	7.5	8.0
College of Business and Technology	12.5	6.7	7.5	5.9
College of Nursing	0	0.9	0.7	6.7
College of Public Health	0	4.8	3.7	2.1
College of Clinical and Rehabilitative Health Sciences	0	2.9	2.2	4.1
School of Continuing Studies and Academic Outreach	3.1	0.9	1.5	3.1
College of Pharmacy	0	1.9	1.5	1.8
Others	28.1	25	26.1	24.8

Figure 4.4: Tobacco use among university personnel (n=1,177)



Level of Knowledge of Tobacco Use of Respondents

Majority of survey respondents agreed on the following statements: “tobacco use is harmful to me” (99.4%), “the smoke from other people’s cigarettes is harmful to me” (97.0%), “tobacco use causes respiratory diseases” (99.9%), “tobacco use causes lung cancer ” (99.7%), and “tobacco use causes heart diseases” (99.7 %). Additionally, 99.5% of respondents recognized that tobacco use is addictive. This results show that the ETSU employee population is very knowledgeable about the dangers of tobacco use and exposure to secondhand smoke.

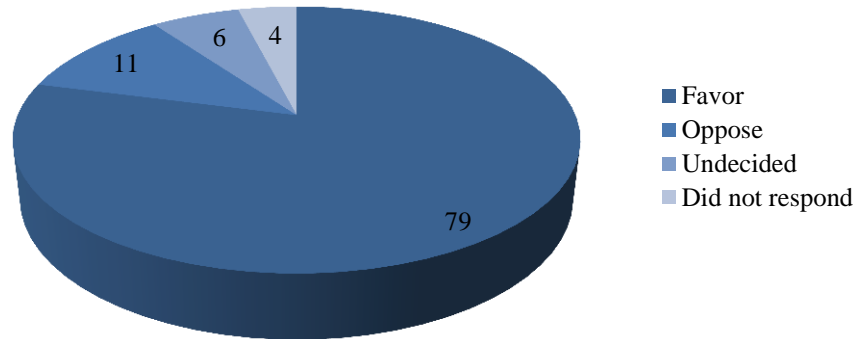
Awareness of the ETSU Tobacco-Free Policy

96% of survey respondents said that they were fully aware of the policy, since the policy has been in place for nearly two years. More than one third of them indicated that they became aware of the policy through campus signs. In spite of this high awareness rate, 23.4% of respondents said ETSU has not done enough to educate or inform employees about the policy.

Attitude toward the ETSU Tobacco-Free Policy

The support for the policy is presented in Figure 4.5, which shows that an overwhelming 79% of the respondents favor it and 11% opposing the policy.

Figure 4.5: Attitudes toward ETSU 100% tobacco-free policy among university employees (n=1,177)



The results of bivariate analysis with respect to the support for the policy were presented in Figures 4.6, 4.7, 4.8, and 4.9. Overall, 83.3% of female respondents and 73.8% of male respondents supported the policy. The highest level of support was among employee age above 60 years old, (90.9%) and the least among those between 30 and 39 years of age (Figure 4.7). In fact, 92.7% of employees between 50 and 59 years reported that they favor the policy. Additionally, the highest support rate for policy (85.7%) was among faculty and the least (73.3%) among clerical/supporting staff (Figure 4.8). Among all categories, the least support for the policy was among current smokers of cigarettes (29.3%; Figure 4.9).

Figure 4.6: Support for ETSU 100% tobacco-free policy by gender (n=1,177)

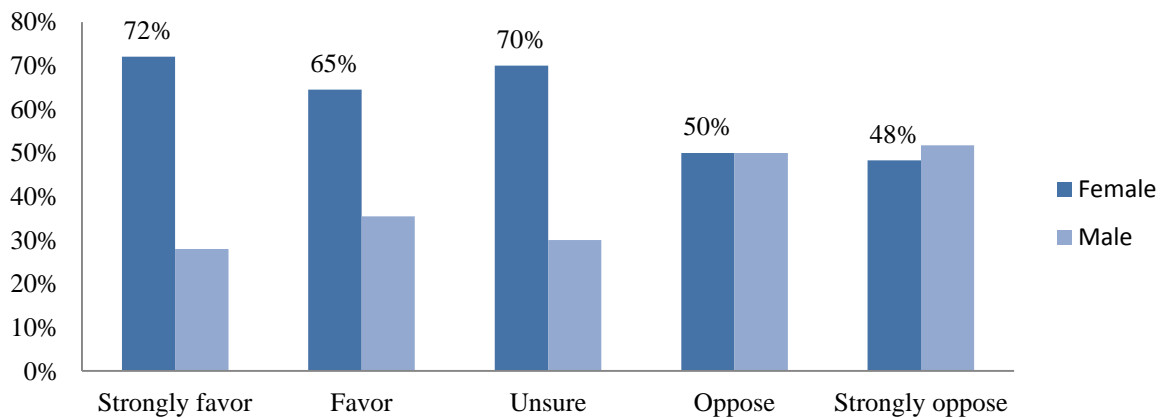
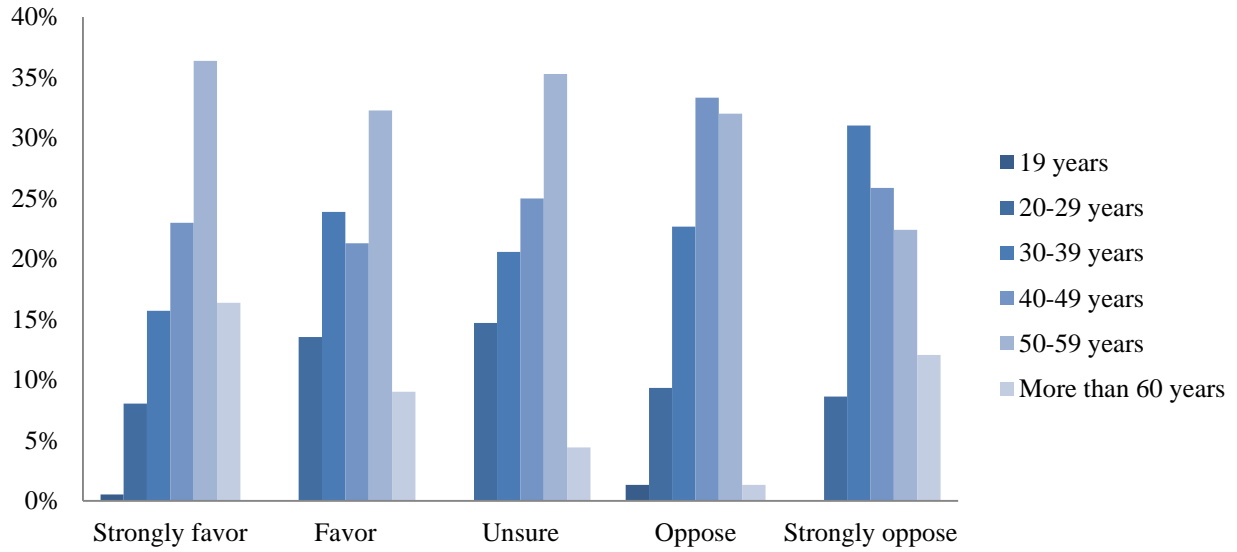


Figure 4.7: Support for ETSU 100% tobacco-free policy by age (n=1,177)



Note: Total sample size n= 1,177, but non-responses have been cleaned by specific variable (age).

Figure 4.8: Support for ETSU 100% tobacco-free policy by primary position (n=1,177)

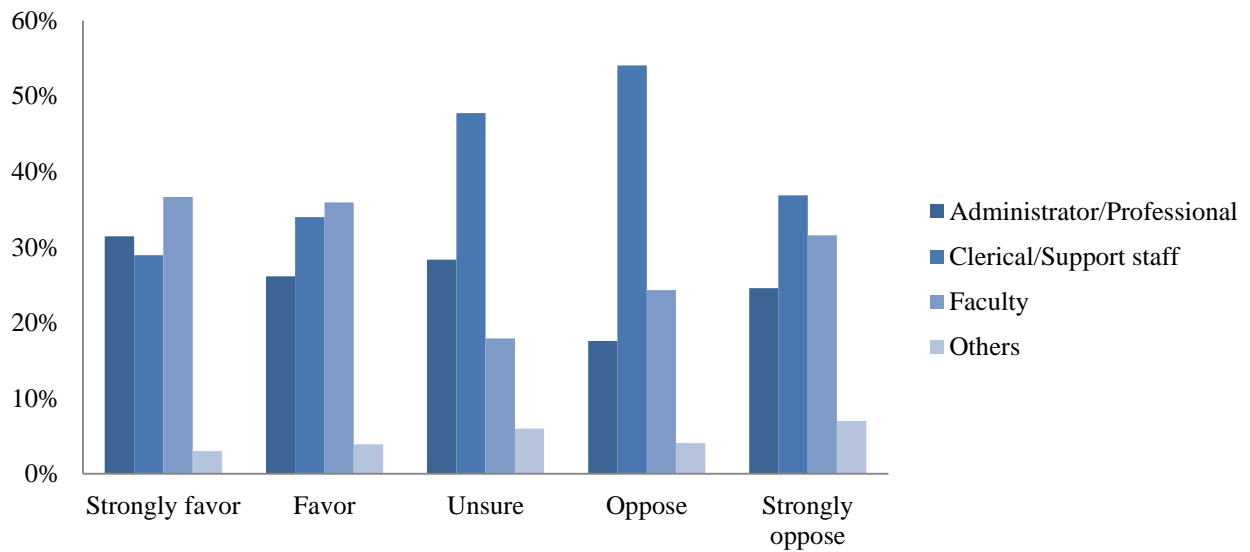
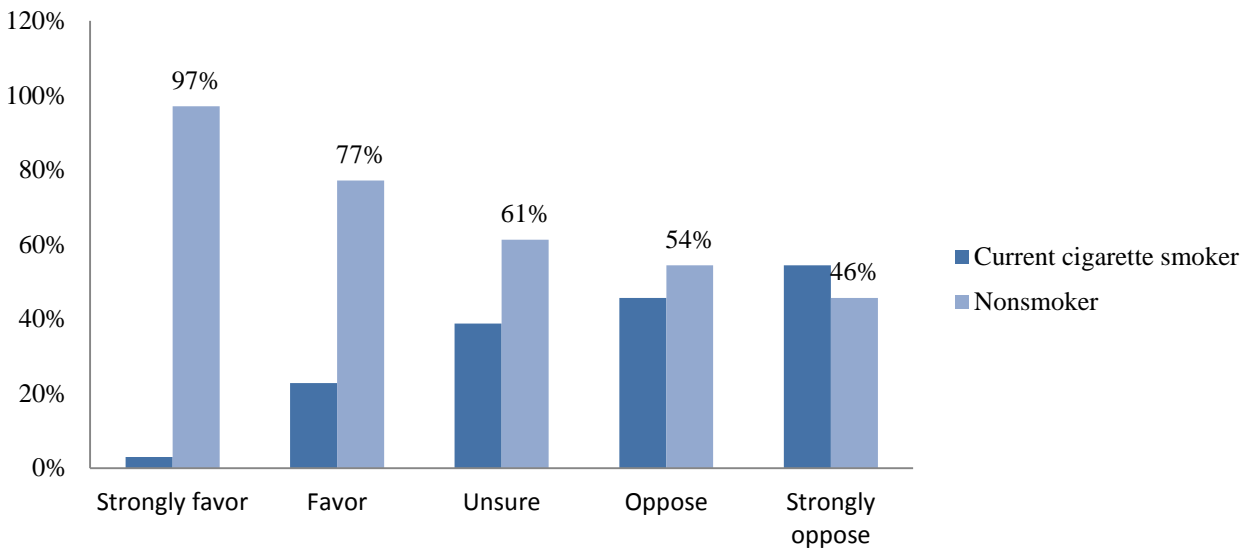


Figure 4.9: Support for ETSU 100% tobacco-free policy by smoking status (n=1,177)



Note: Total sample size n= 1,177, but non-responses have been cleaned by specific variable (smoking status).

Perceptions about ETSU 100% tobacco-free policy

Respondents were asked to indicate what they think about the policy and 72% mentioned that the policy has reduced smoking on campus and 76.6% thought their exposure to secondhand smoking has been reduced. However, approximately 42% were not satisfied with the enforcement of policy. Additionally, 30% of the respondents thought the policy has not been implemented effectively.

Compliance with and Enforcement of ETSU Tobacco-free Policy

Although around 79% of the respondents in the survey indicated that they favored the policy, the survey revealed that 80.8% of them noticed others smoking cigarettes on campus (reporting others), and 4-6% smoked cigarettes or used other tobacco products while the policy was in effect (self-report).

Approximately 63% of current smokers reported that they had smoked cigarettes on ETSU premises or property during the past two years. The places they smoked included road curbs (34%), Culp Center (15%), and between Sam Wilson and Brook Gym (12%). More than 58% of respondents said they usually saw people smoking outside private cars on ETSU premises or property in early afternoon.

While 60% of respondents agreed that the reason people violate the policy was because of weak enforcement, 77% think people just ignore it. Additionally, while 34% of total respondents said they were not sure who to approach when they observe someone violating the policy, 21% reported that they were not willing to report any violation.

To enhance enforcement, 65% respondents disagreed that compliance with the ETSU tobacco-free policy should be voluntary; 71.2% of respondents agreed that employee who smoke outside their private cars should be warned; 60.3% of respondents think ETSU should give citation; and more than half of responded university personnel (50.8%) agreed that ETSU should fine employees who violate the tobacco-free policy. However, although 69.2% of respondents disagreed that ETSU should do nothing to employees who smoke outside their private cars, 58% of respondents indicated that they were not comfortable about asking someone who was smoking outside his/her private car to stop smoking, and 41.1% of respondents felt not comfortable to report people smoking outside his/her private car. While 48% of respondents agreed that ETSU should devote more resources to monitoring compliance and enforcement of the tobacco-free policy, only 33.0% of respondents think employees should play a major role in enforcing the policy. In effect, majority of the employees favor stronger consequences for the violation of the policy than the pre-existing mechanisms (voluntary compliance for employees, no penalty for students, and nothing for visitors).

Smoking on the curbs



DISCUSSION AND CONCLUSION

This study explored the knowledge, attitudes and behaviors of employees of ETSU toward tobacco use and the ETSU tobacco-free policy. The following are the chief findings from the survey:

First, the prevalence among the university employees (9.0% for current cigarette smokers; 2.7% for current users of other tobacco products) is significantly lower than the prevalence rate in the state (22% in 2009) and Washington County (28.9%). However, it should be noted that the 9% current cigarette smokers is above the national rate (6.3% in 2009)²⁵ in similar population, that is, a highly educated population with relatively high socio-economic status. Thus, while the prevalence rate is consistent with general pattern of tobacco use in the country, it is still relatively high, which calls for the need for more information on tobacco use and cessation services for these likely tobacco dependent employees who are aware of the dangers of tobacco use and exposure to secondhand smoke, but find it difficult to quit primarily due to the addiction. With almost 100% of awareness of the dangers of tobacco use among the respondents, it is difficult to explain the 9% current smoking prevalence rate beyond addiction.^{19,26} The implementation of the ETSU tobacco-free policy has, however, decreased the number of people who smoked one pack of cigarette in a day (38.5%) before August 2008 to 28.9%. Indeed, since the policy was implemented, about 20% of the employees have quit or reduced smoking, suggesting that the policy has positive health impact on the tobacco use behavior of the employees.

Second, the idea that tobacco use is associated with socioeconomic status has well been established, i.e., people with higher education and/or income smoke less than those with lower education and/or income.²⁷⁻³⁰ Our study supported this evidence because the least smoking rate was among faculty (6.1%) who are highly educated with relatively higher income, and the highest rate was among the clerical/support staff (13.1%) with lower education and income. In this respect, more resources should be dedicated to informing this category of employees about the danger of tobacco and programs for helping them to quit.

Third, disaggregation of the survey along professional affiliations showed that nearly half of the respondents affiliated with College of Medicine had used tobacco products before (smoked

and smokeless). Even more, current smoking prevalence (16%) is the second highest among all eight colleges and one school in ETSU; close to the prevalence of College of Arts and Sciences (23.6%). This situation should be of concern to both university authorities and policymakers in the state as it has broader impact not only on medical school students but also the patients they serve. This situation can be overcome by making tobacco users in the College of Medicine aware of the broader impact of their behaviors and cessation services for those motivated to quit. In the long term, tobacco control education can be integrated into the curriculum of students in medical and health sciences programs of the university.

Fourth, an overwhelming majority of the respondents (79%), across all categories (except current smokers), favor the ETSU tobacco-free policy. However, 80.8% of them reported that they have seen others smoking outside their private cars before, which is a drawback of the policy. The majority of the respondents attribute this situation to weak enforcement (60.2%) and 64.9% indicated that compliance should not be voluntary. In fact, almost all the 500 suggestions in the survey were about how to properly enforce the policy. Thus, to enhance compliance, the majority of both tobacco users and non-users agree that ETSU should warn employees who smoke outside their private cars. Respondents said,

"I am not sure whom to approach"

"I am not willing to report"

"I am not willing to report any violation, not willing UNLESS I can see that it is being done without consideration of others"

However, respondents who are tobacco users have significant dislike towards any further action such as citation, fine, or sanction. The problem of compliance with the ETSU tobacco-free policy suggests that a well-designed policy without enforcement mechanisms could lead to high rate of noncompliance, which calls for the need for the school administrators to modify the policy to include such mechanisms.

Finally, although at the time of the study, it has been nearly two years since the policy was implemented, more than one third of respondents were not sure who to approach if they observe policy violation. Less than 20% of the respondents were aware that Department of Environmental Health and Safety was responsible for enforcing the policy. In this respect, developing a reporting mechanism such as 1-800 number that people can call in to report

violations can facilitate compliance and enforcement. More efficient social communication and health marketing model should be developed, as we expect employees could play a major role in enforcing the tobacco-free policy and creating a campus society which tobacco use is socially unacceptable and smoke-free is the norm.

In a nutshell, the high support for the policy and the positive impact of helping employees to reduce the volume of cigarettes smoked or quit smoking should motivate the school administrators to confront the problems of compliance, enforcement, and reporting identified in this study. As a policy that covers the use of smoke and smokeless tobacco products, overcoming the drawbacks will motivate employees, students, and visitors to reduce or quit smoking, protect non-smokers from health hazards of exposure to secondhand smoke, and improve sanitation on campus. By that, the ETSU tobacco-free policy will become not only a model for colleges and universities in the state to adopt but also nationwide.

LIMITATION

Like any cross-section data, our data was collected at a particular point in time, which hinders the ability to make any predictions. Additionally, except for the first question, answering any question was completely voluntary, resulting in partial responses. Moreover, responses to the survey were based on self-report and the researchers had no independent way to determine their truthfulness. Furthermore, the survey was anonymous and all the necessary steps were taken to protect respondents' identity, but because tobacco use on campus and the university's premises or property has been prohibited since August 2008, there was the possibility that some respondents were not willing to admit that they were current smokers. However, the general pattern was consistent with national data.

RECOMMENDATION

Although the overall support for the tobacco-free policy among ETSU employee was very high, the rate of noncompliance was also significant. To deal with this drawback, developing a more effective compliance and enforcement mechanism is needed and would be welcomed by the employees. We suggest that the university should assign a specific team to design and constantly monitor a program aimed at improving compliance and enforcement of the tobacco-free policy on campus. The program will have an ultimate goal of not only enhancing the voluntary compliance, but also creating an effective enforcement mechanism.

For enhancing voluntary compliance, the program needs to establish multilevel campus-wide intervention based on diffusion of innovation theory.^{31,32} Through this theory, the adoption of tobacco-free policy can be accelerated on five attributes of innovation: (1) documenting advantages of the policy, (2) showing the compatibility of the policy with existing campus environments, (3) providing examples to reduce the complexity of policy adoption and implementation, (4) allowing ‘trialability’ through examples from other campuses’ experience and (5) illustrating the benefits by making effects observable to potential adopters. Based on this model, the school authorities should link all campus and local community resources to establish and strengthen campus coalition, advocate for compliance through poster and education program for priority population (clerical/support staff and employees between 30 and 49 years of age), and promoting more cessation services.

Improving enforcement mechanism is necessary for sustaining the policy because no successful policy can be built on self-enforcement. For this reason, we suggest the creation of a task force of individuals and associate organizations to patrol regularly in and around campus to resolve policy violation. Additionally, placing and promoting a telephone hotline to encourage people to report violation is a feasible enforcement mechanism.

Controlling tobacco use is a protracted, long-term, complicated and arduous battle, especially in the third largest tobacco-producing state in U.S., where the environment is receptive to tobacco use *albeit* declining. Although further work on maintaining the policy is still a priority, ETSU has made a solid step towards a healthier environment; its tobacco-free policy could have major implication for Tennessee’s higher education system, tobacco-growing states, and

nationwide. Any institution adopting the policy, however, should include strong reporting and enforcement mechanisms.

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APPENDIX A

Informed Consent

We are conducting a research on the knowledge, attitudes and behaviors of ETSU employees toward the ETSU tobacco-free policy. Participants will be asked to complete a series of web-based questions. Your participation in this internet survey is voluntary. Your data will be anonymous and you will not be asked any information that might cause others to be able to identify you. You have the right to skip any item(s) you find objectionable and you have the right to withdraw at any time without penalty. As with any Internet research, no one will see your responses at any time, unless you choose to have someone look at them while you fill out the surveys. There are no right or wrong answers, just provide the most accurate answer for you. Your answers are important, so please take your time responding to the questions and answer them honestly.

APPENDIX B

SURVEY INSTRUMENT

DEMOGRAPHIC INFORMATION OF ETSU EMPLOYEES

1. What is your gender?

- Female
- Male

2. What is your primary position in ETSU?

- Administrative/ Professional
- Faculty
- Clerical/support staff
- Others, please specify

3. How many years have you been working at ETSU?

- Less than 1 year
- 1–5 years
- 6-10 years
- 11-15 years
- 16-20 years
- 21-25 years
- 26-30 years
- More than 30 years

4. What race or races do you consider yourself to be? (Confidentiality statement)

- American Indian or Alaska Native
- Asian
- Black or African American
- Caucasian/White
- Hispanic
- Native Hawaiian or Pacific Islander

5. Which college or school do you work for?

If you cannot find the name of your college/school, please choose “other”

- College of Arts and Sciences
- College of Business and Technology
- College of Clinical and Rehabilitative Health Sciences
- College of Education
- College of Medicine
- College of Nursing
- College of Pharmacy
- College of Public Health
- Honor College
- School of Continuing Studies and Academic Outreach

- School of Graduate Studies
- Others, please specify

6. How old are you?

- 19 years
- 20-29 years
- 30-39 years
- 40-49 years
- 50-59 years
- More than 60 years

TOBACCO USE BEHAVIOR OF ETSU EMPLOYEES

1. Have you ever smoked cigarettes?

- Yes
- No (*Skip to Knowledge about Tobacco Use*)

2. Do you currently smoke?

- Yes
- No (*Skip to Question 9*)

2b. If yes, please select the brand(s), (Choose all that apply)

- I do not have a usual brand
- American Spirit
- Camel
- GPC, Basic, or Doral
- Kool
- Lucky Strike
- Marlboro
- Parliament
- Virginia Slim
- Some other brand. Please specify

3. How often do you smoke?

- Many times a day
- Once a day
- Once every few days
- Once a week
- Once every few weeks
- Rarely

4. How many packs of cigarettes were you smoking daily before August 2008?

- Less than 1 pack
- 1-2 packs
- 3-4 packs
- More than 5 packs

5. How many packs of cigarettes have you been smoking daily since August 2008?

- Less than 1 pack
- 1-2 packs
- 3-4 packs
- More than 5 packs

6. Where do you usually smoke cigarettes? (Choose all that apply)

- I do not smoke now
- At home
- At school
- At work
- In the car
- At friends' houses
- At sports events, parties, dances, raves, or other social events
- In public buildings (restaurants, fast food places, shopping malls, or other hangouts)
- Outdoors (sidewalks, parking lots, parks, or other places)
- Others, please specify

7. To what extent do you agree with why you smoke?

	Strongly agree	Agree	Unsure	Disagree	Strongly disagree
Smoking is a behavior					
I am addicted to smoking					
I smoke for relaxation					
I smoke to relieve stress					
Smoking gives me something to do with my hand					
I use smoking as a coping mechanism					
Smoking keeps me going through the day					
Smoking gives me the opportunity to take break from work					
I smoke for social reasons					
I smoke because my friends smoke					
Smoking increases my level of concentration					
Smoking keeps me awake					
Smoking reduces my appetite					
I smoke because my family member smokes					

7b. If none applies, please specify: _____

8. Have you ever tried or attempted to stop using tobacco products?

Yes

No

8b. If yes, how many times?

1-2 times

3-4 times

5-6 times

>6 times

If others, please specify: _____

8c. if no, do you have any intentions to quit using tobacco products?

Yes

No

9. Have you ever used tobacco products other than cigarettes?

Yes

No (*Skip to Knowledge about Tobacco Use*)

10. Do you currently use any tobacco products other than cigarettes?

Yes

No (*Skip to Knowledge about Tobacco Use*)

10b. If yes, please select the brand (Choose all that apply)

I do not have a usual brand

Electronic cigarettes

Eclipse cigarette

Omni

Advance lights

Accord

Arivia

Some other brand. Please specify: -----

11. How often do you use tobacco products other than cigarettes?

Many times a day

Once a day

Once every few days

Once a week

Once every few weeks

Rarely

KNOWLEDGE OF TOBACCO USE

1. What do you think about tobacco use?

	Definitely yes	Probably yes	Unsure	Probably no	Definitely no
Tobacco use is harmful to me					
Tobacco use is addictive					
Tobacco use causes respiratory diseases					
Tobacco use causes lung cancer					
Tobacco use causes heart diseases					
The smoke from other people's cigarettes is harmful to me					

AWARENESS OF THE ETSU TOBACCO-FREE POLICY

1. Do you know ETSU has a tobacco-free policy?

Yes

No

1b. If yes, how did you hear about the ETSU tobacco-free policy? (Choose all that apply)

Colleague

ETSU employee orientation

ETSU employee handbook

Supervisor

Campus sign

ETSU website

Newspaper (easttennessean)

Others, please specify: _____

2. Do you think that ETSU is doing enough to educate or inform employees about the policy?

Definitely yes

Probably yes

Unsure

Probably not

Definitely not

3. Have you ever received any help from ETSU to help you stop using tobacco products?

- a) I have never used tobacco products
- b) Yes
- c) No

3b. If yes, please specify:

- Employee Health Insurance (Blue Cross, Cigna, United Healthcare) Smoking Cessation aids
- Employee Assistance Program (EAP) Counseling
- Smoking Cessation Classes/Counseling
- Others, please specify: _____

4. Have you ever attended any program or seminar on the ETSU tobacco-free policy?

- Yes
- No

4b. if yes, please list the name of program or seminar you attended: _____

ATTITUDES TOWARD THE ETSU TOBACCO-FREE POLICY

1. Do you favor the ETSU tobacco-free policy?

- 1 Strongly favor
- 2 Favor
- 3 Unsure
- 4 Oppose
- 5 Strongly oppose

1b. If 1 or 2, why do you favor the policy?

1c. If 4 or 5, why do you NOT favor the policy?

COMPLIANCE WITH THE ETSU TOBACCO-FREE POLICY

1. Have you ever smoked cigarettes on ETSU premises or property during the past two years?

I don't use tobacco products (*Skip to question 3*)

Yes

No (*Skip to question 2*)

1b. If yes, under what circumstance did you smoke outside your private car?

(Open-end question)

Please specify: _____

1c. If yes, please select the place(s) where you smoked. (Choose all that apply)

At Bucshot stop

At lower level of Culp Center

Behind library in sheltered corner

Beside dumpsters between library and Roger Stout

Behind Tree House Snack Bar

Between Sam Wilson & Brook Gym

Cave patio lower level by stairwell exit

ETSU's premises' restroom

ETSU's premises' stair well

In or around residence hall

In or around Mini Dome

In school car

In Cafeteria

In ETSU Parking lots

In or around Center of Physical Activities

On campus road curbs

On Tennis field

On Football field

Others, please specify:

2. Have you ever used any other tobacco products on ETSU premises or property during the past two years?

Yes

No (*Skip to question 3*)

2b. If yes, please select the place(s) where you used them. (Choose all that apply)

At Bucshot stop

At lower level of Culp Center

Behind library in sheltered corner

Beside dumpsters between library and Roger Stout

Behind Tree House Snack Bar

- Between Sam Wilson & Brook Gym
- Cave patio lower level by stairwell exit
- ETSU's premises' restroom
- ETSU's premises' stair well
- In or around residence hall
- In or around Mini Dome
- In school car
- In Cafeteria
- In ETSU Parking lots
- In or around Center of Physical Activities
- On campus road curbs
- On Tennis field
- On Football field
- Others, please specify:

3. Have you ever noticed anyone using tobacco products outside his/her private car on ETSU premises or property?

- Yes
- No (*Skip to question 5*)

3b. If yes, how often do you see people smoking outside their private cars on ETSU premises or property?

- Very often
- Often
- Unsure
- Not often
- Rarely

3c. If yes, please choose the places where you found people smoking outside their private cars. (Choose all that apply):

- At Bucshot stop
- At lower level of Culp Center
- Behind library in sheltered corner
- Beside dumpsters between library and Roger Stout
- Behind Tree House Snack Bar
- Between Sam Wilson & Brook Gym
- Cave patio lower level by stairwell exit
- ETSU's premises' restroom
- ETSU's premises' stair well
- In or around residence hall

- In or around Mini Dome
- In school car
- In Cafeteria
- In ETSU Parking lots
- In or around Center of Physical Activities
- On campus road curbs
- On Tennis field
- On Football field
- Others, please specify:

4. During what time in the day do you usually see people smoking outside their private cars on ETSU premises or property?

- In the early mornings
- In late mornings
- In early afternoons
- In evenings
- In nights
- In late nights

5. To what extent do you agree with the reasons why people smoke outside their private cars on ETSU premises or property?

	Strongly agree	Agree	Unsure	Disagree	Strongly disagree
Observe others smoking					
Weak enforcement in the ETSU tobacco-free policy					
Lack of awareness about the ETSU tobacco-free policy					
Inadequate tobacco-free signs					
Ignore the ETSU tobacco-free policy					
Smoking is part of the culture of the people from ETSU surroundings					
Hot temperature inside people's private car					
Their private cars are not accessible due to cold weather conditions					
Weather is nice outside					

5b. If none applies, please specify: _____

IMPACTS OF THE ETSU TOBACCO-FREE POLICY

1. What do you think is the impact(s) of the ETSU tobacco-free policy?

	Strongly agree	Agree	Unsure	Disagree	Strongly disagree
The ETSU tobacco-free policy has reduced or will reduce smoking on ETSU premise/property					
The ETSU tobacco-free policy has reduced or will reduce the exposure of people to cigarette smoke from others on ETSU premises/property					
The ETSU tobacco-free policy has improved or will improve the health of ETSU employees					
The ETSU tobacco-free policy has helped or will help ETSU save money					
The ETSU tobacco-free policy has made or will make ETSU premises/property cleaner					
The ETSU tobacco-free policy has motivated or will motivate employees to seek smoking cessation help					
The ETSU tobacco-free policy has been implemented effectively					
I am satisfied with how ETSU enforces the tobacco-free policy					
I am satisfied with how ETSU raises awareness about the tobacco-free policy					
The ETSU tobacco-free policy has increased my preference for smoke-free environments					
The ETSU tobacco-free policy has promoted or will promote nonsmoking culture among ETSU employees					
The ETSU tobacco-free policy has promoted or will promote nonsmoking culture in ETSU surroundings					
It is necessary to make smoking cessation part of the ETSU tobacco-free policy					
The ETSU tobacco-free policy has reduced or will reduce cigarette butts on ETSU premises/property					
The ETSU tobacco-free policy makes or will make me to quit using tobacco products					

ENFORCEMENT OF THE ETSU TOBACCO-FREE POLICY

1. To what extent do you agree with the following?

	Strongly agree	Agree	Unsure	Disagree	Strongly disagree
Compliance with the ETSU tobacco-free policy should be voluntary					
ETSU should warn employees who smoke outside their private cars.					
ETSU should cite employees who smoke outside their private cars					
ETSU should fine employees who smoke outside their private cars					
ETSU should penalize employees who smoke outside their private cars					
ETSU should sanction employees who repeatedly smoke outside their private cars					
ETSU should not do anything to employees who smoke outside their private cars					
ETSU should allow employees to play a major role in enforcing the tobacco-free policy					
I am comfortable about asking someone who is smoking outside his/her private car to stop smoking					
I am comfortable about reporting someone who is smoking outside his/her private car to stop smoking					
ETSU should devote more resources to monitoring compliance and enforcement of the tobacco-free policy					

2. Who would you approach if you find someone smoking outside his/her private car on ETSU premises or property? (Choose all that apply).

- Department of Public Safety
- Department of Environmental Health & Safety
- Department of Human Resources
- Supervisor
- Safety Technician
- Building Coordinators
- Campus police

- _Student Affairs
- _I am not sure whom to approach
- _I am not willing to report any violation
- _Others, please specify____

SUGGESTIONS/RECOMMENDATIONS

What suggestion(s) would you like to make about improving the current ETSU tobacco-free policy?

Thank you for participating in this survey.

TOBACCO POLICY RESEARCH PROGRAM

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