Outdoor Smoke and Tobacco Free Policy: Changing Attitudes and Social Norms

By

Sarah Sprague

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Approved: Nicole Ngo

Professor Nicole S. Ngo

This paper examines the influences that daily environmental exposure to smoking can have on a youth's decision to begin smoking. It also examines if implementing outdoor smoke and tobacco free policies changes perceptions of smoking to make it seem more socially unacceptable. Smoking is the leading cause of preventable death in the United States due to unforeseen chronic conditions at the time of smoking initiation. Most United States adults report beginning to smoke before they turn eighteen. By examining what makes smoking undesirable to youth, we can implement policies which keep them from starting in the first place and save their lives.

Dedication

This work is dedicated to the many hundreds of thousands of people who lose their lives and lose loved ones to tobacco related illnesses every day. I would also like to dedicate this to my parents for providing me with the college education to get to this point and for always showing me that a life which does not benefit others is not a life worth living.

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Table of Contents

1. Introduction.....1

2. Literature Review.....3

3. Methods.....16

4. Results.....19

5. Analysis and Discussion.....27

6. Recommendations and Conclusion.....30

7. Appendices.....32

8. Bibliography.....41

Introduction

"Tobacco is not just another of the many unhealthy habits people take up. Nothing else comes anywhere close. Smoking kills 440,000 Americans a year, or nearly one in five deaths in America. That is equal to about three fully occupied 747s crashing every single day. It's ten times as many deaths as occur from car crashes each year, and twenty times as many deaths as from HIV/AIDS."

-Tom Farley and Deborah A. Cohen, *Prescription for a Healthy Nation*

Tobacco is the leading cause of preventable death in the United States with an estimated 443,000 people dying from tobacco related illnesses each year. Of these deaths, 49,000 are caused by second-hand smoke (CDC "Tobacco Related Mortality"). In addition, tobacco related illnesses cost our society about 96 billion dollars in medical costs every year as well as 97 billion dollars in lost productivity. All together, tobacco use is costing the United States about 193 billion dollars per year (CDC "Tobacco Use").

19% of United States adults are current, daily smokers. In addition, 4,000 youth under the age of 18 try their first cigarette every day, and 1,000 teens become new daily smokers each day (CDC "Tobacco: Fast Facts"). Related to this, 88% of current daily adult smokers say they began smoking before they turned 18 (CDC Fact Sheet). In 2000, tobacco accounted for 30% of cancer deaths and 21% of cardiovascular deaths. Poor diet and physical inactivity follow tobacco as the second leading cause of death, killing 365,000 in 2000, followed by alcohol, which pales in comparison, killing 85,000 people in 2000 (Schneider 214).

These statistics emphasize that smoking and tobacco use are not simply risky behaviors; they are America's leading killer. Nicotine, the addictive property in tobacco and cigarettes, is one of the most addictive substances in the world and its delivery

systems (cigarettes, chewing tobacco, etc.) are killing more people in the United States than anything else. If this is the case, why does it persist so visibly and consistently in our communities?

There are many strategies and policy solutions used to mitigate the damage caused by tobacco. Tobacco control policies range from taxation, to education, to smoking bans. Though tobacco policy is most effective when tackled from many angles, in my thesis I focus particularly on outdoor smoking bans or tobacco free policies. Outdoor smoke and tobacco free policies have received less attention in the literature since they are relatively new compared to other tobacco control policies discussed above. The goal of smoke and tobacco free policies is to remove tobacco from our daily lives and change social norms and attitudes around smoking and tobacco use, making it unpopular to smoke, especially among youth.

More specifically, I consider the impacts of smoke and tobacco free universities and campuses on youth, and the potential to expand smoke and tobacco free policy to parks and open spaces, downtown cores, and potentially entire municipalities. Smoke-free campuses have largely been accepted and enacted, while very few municipalities and parks and open spaces have taken the step toward smoke-free environments. Yet, few studies have attempted to evaluate their effectiveness on tobacco use, so in this study I survey thirty college students at the University of Oregon, both smokers and non-smokers, about why they started smoking or decided to never start smoking. I focus particularly on assessing if removing environmental influences can indeed help to reduce youth smoking initiation. I used statistical tests and summary statistics to determine if there were any differences between smokers and non-smokers on the

importance of these environmental factors. These environmental influences include their physical environment, family, social groups, and policies that influence smoking initiation.

Thus, the purpose of this study was to determine if stated environmental influences impact a young person's decision to begin smoking. I have two hypotheses:

1. Students exposed to more smoking or tobacco use in their environment are more likely to smoke later in life.

2. Implementation of a smoke-and-tobacco-free policy would change students' perceptions of the social acceptability of smoking.

After conducting the study, I found no statistically significant relationship between the environmental factors tested here and influence on smoking behavior. However, I found that implementing a smoke and tobacco free policy could change perceptions of smoking to seem more socially unacceptable and also unhealthy.

Literature Review

Public Health Overview

Before addressing tobacco policy specifically, especially outdoor smoke-free policies, it is crucial to understand the purpose of public health and the theoretical models used to change behavior and create health policy. Charles-Edward A. Winslow, a leader of public health in the United States in the 20th Century, defined public health in a straightforward way that still holds true today:

"The science and art of preventing disease, prolonging life, and promoting physical health and efficiency through organized community efforts for the sanitation of the environment, the control of community infections, the education of the individual in principles of personal hygiene, the organization of medical and nursing services for the

early diagnosis and preventive treatment of disease, and the development of social machinery which will ensure to every individual in the community a standard of living adequate for the maintenance of health." (Schneider 5)

Simply put, the intention of public health is to protect the public's health, and it focuses primarily on prevention- as opposed to medicine- which focuses on treatment. It is important to remember that public health does not work in individual health, but rather in population health, and its goal is to improve overall population health. Remember this when we examine the health behavior models below, which seek to change individual behaviors through social policy.

There are varying views on the necessity of public health. Some people argue that people should be responsible for their own health and that making responsible health decisions is the responsibility of the individual. While this is partially true, many people do not have access to the resources, education or willingness to change their behaviors. Without public health measures, we would not have conveniences such as clean drinking water or be protected from indoor second-hand smoke. In addition to this, when people make their own poor individual health choices, everybody pays the price through factors such as increased insurance premiums and taxes which go to social services like Medicaid and Medicare (government health insurance for the poor and elderly). This will be examined in more detail with relation to tobacco-related costs.

This paper will utilize two public health models of behavioral change: the social-ecological model and the Health Impact Pyramid. The Ecological Model of Health Behavior (sometimes called the social-ecological model) has been proposed in light of the realization that individual behaviors are very much shaped by the social

environment that individuals live within. It involves five factors, best understood through the following diagram.

Figure 1.1 Ecological Model of Health Behavior (Schneider).

The first level of the model, intrapersonal (individual) factors, include the knowledge, skills and attitudes of the individual. The second level is interpersonal relations, such as friends and family, and acknowledges that many of our health behaviors are learned from those that raised us, such as exercising and eating patterns. Peer relationships become more important later in life as well, which also fits into the interpersonal factor. The third level of influence involves institutional or organizational settings (such as workplaces and schools), which is very significant in terms of health impact because people spend about a third or half of their lives in such settings (Schneider 233). Since this study focuses on prevention among youth, these types of institutions will be an area of focus in terms of smoking bans.

At the fourth level, community influence is considered strongly because communities are often agents of health promotion as organizations work together to support health promotion goals. The fifth level of influence (the most influential) is

public policy, including national, state and local laws. These policies set the regulations and limitations on behavior and are often the most controversial, yet most compelling, ways to change individual behavior (Schneider 233-234).

The other model used, which functions similarly to the Ecological Model, is the Health Impact Pyramid, sometimes called Thomas Frieden's Pyramid named after its creator, the former director of the Centers for Disease Control and Prevention (CDC).

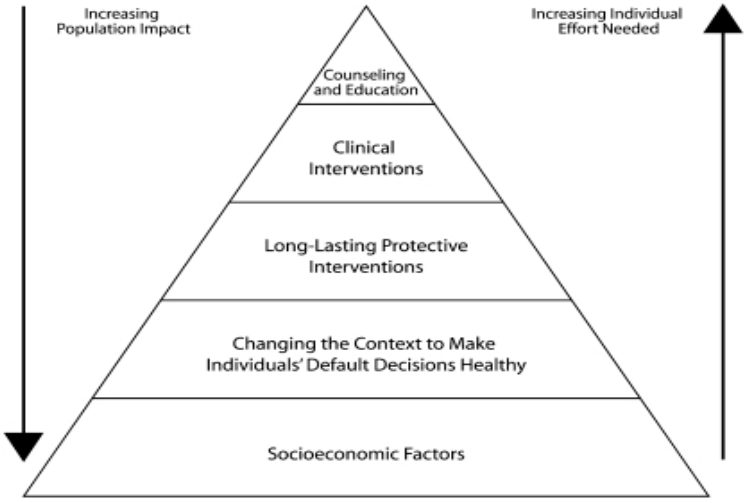

Figure 1.2 Health Impact Pyramid (CDC).

As one can see from the pyramid, socioeconomic factors and changing the context are proposed to have the most impact on changing health behaviors and attitudes. These are the most effective measures because they make the healthy choice the easy choice. Just as the ecological model suggests, each other level is necessary as well but requires more individual effort which makes it more challenging to get individuals to change their behaviors (Frieden). While other tobacco policies focus on those interventions at the top of the pyramid, such as education programs and warning advertisements, they are often less effective, as stated above. Outdoor smoke and tobacco free policies change the context of the individual's environment.

These models of behavior change are very important to follow when attempting to change behaviors and attitudes around smoking and tobacco use. Individual interventions are not enough. Although they are still needed, complete behavior change will be much less likely without policy and community support. The Ecological Model and Health Impact Pyramid serve to remind us that each influence factor must be accounted for, but that each builds on the other and without the outer/lower levels, the inner/upper levels are much more difficult to accomplish. In the literature review, we will review why it is so difficult to change individual behaviors when it comes to tobacco use.

Tobacco Policy Overview

In my thesis I focus on outdoor smoking bans as a potential policy to reduce smoking, however, the literature on the effectiveness of these policies thus far has received little attention, since most studies focus on indoor smoking bans which have been in place longer. One example is from the authors of *Prescription for a Healthy Nation*, Tom Farley and Deborah A. Cohen, who argue that in all behavioral health issues policy must tackle four major areas: accessibility, physical structures, social structures and the media. They define specifically how this framework plays into tobacco policy. For accessibility, they recommend restrictions on sales to children and using cigarette excise taxes, arguing that excise taxes will cut sales among adults and double the amount among teens. In terms of physical structure, the authors do not see much hope in creating a "safer" cigarette and do not put much stock in the idea of investing in "smokeless" cigarettes. Their recommendations for social structures are those that I find most compelling, stressing that creating smoke-free environments,

indoors and out, make smoking socially unacceptable. They cite that the *largest decline* in smoking rates in the history of the United States followed workplace bans on smoking (138). When it comes to media interventions, Farley and Cohen stress the importance of creating anti-smoking ads while also limiting tobacco product advertisements and tobacco placement in movies. They argue that states that have implemented anti-tobacco advertising campaigns slashed youth smoking rates (138-139).

Richard J. Bonnie provides additional policy recommendations in his chapter "Tobacco and Public Health Policy: A Youth Centered-Approach" in the book *Smoking: Risk, Perception, and Policy* edited by Paul Slovic. He identifies the three priorities for "immediate action", per the book from the Institute of Medicine, *Growing Up Tobacco Free*, which are: (1) raise the prices of tobacco products, aiming for a target increase of $2.00 per pack; (2) repeal federal preemption on the ability of local and state laws to regulate tobacco advertising and promotion; and (3) helping states "build the capacity to implement comprehensive tobacco control programs" (290). To clarify goals 2 and 3, both relate to giving more legislative and governing power to state and local governments in creating and enforcing tobacco control programs. The second goal specifically refers to getting the federal government to allow states and localities to regulate smoking advertisements (291).

While Bonnie lists these three measures as priorities, he also recommends several other factors in tobacco control policy for future sustainment. He recommends regulation of tobacco products, meaning that Congress and the Supreme Court need to delegate more power to agencies like the Food and Drug Administration to regulate

packaging and restrictions on where and to whom tobacco can be sold (296). This goal is now outdated because in 2009 Congress passed the Family Smoking Prevention and Control Act which gives the FDA the authority to regulate tobacco products (Tobacco Technical Assistance Consortium). Secondly, like many of the other authors and experts reviewed, Bonnie recommends continuing to restrict advertising and promotion of tobacco products, especially to youth, in order to de-normalize smoking and tobacco use (297). Thirdly, Bonnie recommends promoting a tobacco-free norm, or creating more smoke-free environments (298). However, this book was published in 2001 before the on-set of many indoor and outdoor smoke and tobacco free policies so Bonnie does not go so far as to recommend outdoor smoke-free policies. Finally, he suggests monitoring and research of tobacco control programs and cessation services (299).

The most comprehensive evaluation of tobacco policies comes from Levy et al. in their article, "Effects of Tobacco Control Policies on Smoking rates: A Tobacco Control Scorecard". The authors evaluate taxes, clean indoor air laws, advertising restrictions, mass media policies, product labeling, school education policies, access to cessation treatments, telephone quit lines and youth access enforcement. They identified taxes, clean air smoking bans, tobacco cessation programs and youth access enforcement to be the most effective policies in reducing smoking prevalence rates (Levy et al. 339-344). The authors found an approximate 11% decrease in prevalence of smoking among populations where comprehensive indoor smoking bans have been enforced, specifying that enforcement and full informational campaigns are necessary in order for these to be effective (Levy et al. 341). The authors explained that there will be costs associated with enforcement and banning campaigns, but they will be fully

redeemed by the reduced costs from decrease in number of fires, cleaning costs, absenteeism from work and general healthcare costs. (Levy et al. 341).

This study, however, does not address effects on smoking prevalence following an outdoor smoking ban, as in expanding bans further, and looks only at workplace, restaurant and schools bans on smoking. In my thesis, I focus on outdoor bans, a relatively new policy compared to indoor bans, as another potential mechanism for helping individuals, particularly those in high school since that is when most youth start to smoke, default to more healthy decisions.

The study also found that higher prices from taxes were effective among youth and adults between the ages of 18 and 24, but mostly effected those transitioning from starting to smoke to becoming a regular smoker. This suggests that taxes may not be an effective measure to prevent youth from ever starting to smoke (Levy 339). Next, they found that youth access enforcement laws, as in reducing the access that youth have to tobacco products, are anticipated to reduce smoking prevalence among youth by 25% (Levy et al. 344). Tobacco cessation programs, alternatively, increased quit rates by 25% among people already using tobacco, making it a mitigation rather than tobacco-use prevention strategy (Levy et al. 345). Strategies like advertising restrictions, mass media policies, product labeling, school education policies, and telephone quit lines have little or no effect on tobacco prevalence rates. Some of the policies contribute to reduction in prevalence only when combined with other tobacco policies or within a policy framework. This is true for strategies like advertising restrictions, mass media policies and education programs (Levy et al. 342-344).

Little literature exists on the effectiveness of smoke and tobacco free policies on reducing rates of smoking initiation among youth because few have been in effect long enough to study declines in smoking rates. Additionally, there are statistical challenges to isolating the effect of a smoking ban smoking on reductions to smoking because there are likely other tobacco control policies in effect in that community, such as tobacco taxes, advertising bans and selling restrictions. However, existing studies observe how community members consider smoke free policies and their effectiveness. One study done in Minnesota, a state which has implemented many smoke free bans in parks in open spaces in at least 70 communities, conducted a survey of its residents about their opinions on the effects of their policies (Klein et al. 1). Of those surveyed, 70% were in favor of such policies. The reasons they cited included to "reduce youth opportunities to smoke" and "establish positive role models for youth", among other reasons such as litter reduction (Klein et al. 1). This study shows that in general, community members are not only in favor of smoke-free policies in outdoor areas, but also believe that they are effective at preventing youth smoking initiation.

Another study, also done in Minnesota, surveyed students and parents of grades eight through ten about the relationship between smoking visibility in public areas and related views about social acceptability of smoking. They found that those teens who smoked were more likely to have observed adults and teens smoking in public places and as a result also found it to be more socially acceptable (Alesci et al.). This suggests that the more youth are around smoking or see it in their daily lives, the more likely they are to smoke. Reducing the number of areas in which smoking would be observable by youth could reduce rates of smoking initiation.

Finally, when speaking of tobacco control policy, most public health experts and policy writers refer to some version of the MPOWER framework as a guide to build local, state and national policies around. The MPOWER framework was originally developed by the World Health Organization and has been widely used. MPOWER stands for:

Monitor tobacco use and prevention policies.

Protect people from tobacco smoke.

Offer help to quit tobacco use.

Warn about the dangers of tobacco use.

Enforce bans on tobacco advertising, promotion, and sponsorship.

Raise taxes on tobacco.

MPOWER is endorsed by the CDC, who state that their main tobacco goals are as follows: "Preventing young people from starting smoking; eliminating exposure to second-hand smoke; promoting quitting among young people and adults; identifying and eliminating tobacco-related health disparities among different population groups" (CDC "Tobacco Use"). In order to accomplish this, the CDC aims to advance smoke-free policies, increase the price of tobacco (taxes), use mass media to educate the public, "help states increase their resources for comprehensive tobacco control programs", and help to expand cessation resources to help smokers and tobacco users quit. However, the MPOWER framework does not explicitly state a need to promote public smoking bans or touch on the importance of de-normalizing tobacco in everyday life.

As seen above, many tobacco experts agree on a few must-haves when it comes to tobacco control, although they may not fully agree on the importance of each. In general, the most necessary steps in tobacco control include taxation, restricting access to tobacco (especially among youth), creating smoke-free environments and limiting advertising and promotion.

Youth-Centered Approach

One of the main motivations behind studying outdoor smoking bans, especially at high school or college campuses, or nearby parks or downtown areas, is because most adult daily smokers report that they began smoking before they turned 18 and quit rates among this demographic are particularly low. For example, a study by the Institute of Medicine (IOM) found that half of high school seniors who smoked expected not to be smoking in five years, but 80% of those who smoked more than a half-pack per day were smoking 5 years later (IOM, 22). In some sense, these numbers are striking, but when digested with the knowledge of how addictive nicotine is they should not be surprising at all. Due to the difficulty of tobacco cessation and the typical age of smoking initiation, it is crucial that tobacco policy focus on prevention, especially among youth, of smoking and tobacco use initiation, even more so than cessation. This is also why social policies and community support (referencing the ecological model) are important in tobacco initiation prevention: individual desire or ability is not capable of making the behavior change.

Smokers' Risk Perception

Outdoor smoke and tobacco free policies help change smoking behaviors and act as an instrument to keep people from making poor health choices because smokers or pre-smokers often fail to recognize their own risk of health complications and mortality. As mentioned above, individual health behavior changes are very challenging when it comes to smoking. In terms of tobacco cessation, this is due to the addictive properties of nicotine. However, prevention efforts focused on the individual level are also ineffective because smokers or pre-smokers fail to recognize the health and mortality risks associated with smoking or their own ability to quit. Paul Slovic's book, *Risk, Perception, and Policy,* includes several chapters which acknowledge this issue.

In their chapter, "What Do Young People Think They Know About the Risks of Smoking?", Patrick Jamieson and Daniel Romer show that smokers fail to recognize the health risks associated with smoking as well as overestimate their ability to quit. In their study, half of the smokers underestimated or said they did not know how many years a smokers' life would be shortened by compared to a non-smoker (59). In addition, they stated that: "Although smoking kills more people each year than alcohol and drugs combined, most respondents believed the opposite was the case... Smokers also perceived getting drunk to be more risky than smoking" (62). Smokers clearly show a lack of knowledge about how smoking might affect their chances of living.

Smokers are also inaccurately optimistic about their ability to quit smoking. Jamieson and Romer show that 62% of the smokers they surveyed believed that quitting is either "very easy or hard but doable" (59). Even smokers who had attempted quitting and failed remained highly optimistic of their ability to do so (59). The authors report

that: "Of daily smokers who thought they would not be smoking in 5 years, nearly 75% were still smoking 5 to 6 years later" (59).

Neil D. Weinstein adds additional evidence to the false of optimism of smokers in his chapter "Smokers' Recognition of Their Vulnerability to Harm". He states that: "Together, the literature is quite clear in showing that smokers substantially underestimate their own personal risk. In the great majority of studies, smokers have demonstrated unrealistic optimism: They assert that their own risk is lower than the risk faced by other smokers" (93). This indicates that smokers live in a reality of denial in which they can attribute risk to other smokers but believe themselves to be invincible in order to deny the potential risks posed to their health. This knowledge about smokers' lack of understanding of their own risk is serious evidence for tobacco control and prevention policies. Smokers are their own worst enemy and lack the risk perception to protect themselves from the ills of smoking. This is where policy steps in to save people from themselves.

Tobacco-Related Costs

Aside from protecting the public's health, tobacco control policies also aid the United States economically. While only 17.9% of US adult smokers at or above the poverty line smoke, 29% of adults under the federal poverty line smoke, indicating that smoking is more prevalent among adults who are low-income (CDC "Adult Cigarette Smoking") . These adults are more likely to be accessing health care through Medicaid, the federal program which provides citizens under the poverty line with medical care.

As mentioned in the introduction, the United States spends about $193billion dollars per year in tobacco-related costs, both on tobacco-related illnesses as well as in

lost productivity. According to the Tobacco Technical Assistance Consortium of the Emory Rollins School of Public Health, in 2011 the cost to US taxpayers to cover federal and state spending on tobacco costs was $70.7 billion, which comes out to $616 per household. $30.9 billion of these costs came from Medicaid spending on tobacco-related illnesses and diseases. 27.4 billion of these dollars went to Medicare spending on tobacco illnesses and diseases. An additional $9.6 billion was due to additional federal spending on tobacco-related diseases, for example, health care of veterans.

This is significant because many of the people who are receiving government funded care for tobacco-related illnesses are living under or very close to the federal poverty line, meaning they likely cannot afford necessary cessation services and may not have had as much access to tobacco-related education and prevention efforts. Public health policies, especially outdoor smoke and tobacco free policies, offer prevention benefits to everyone, regardless of income level, and are crucial to reduce US government and taxpayer costs for tobacco-related illnesses. When viewed in this light, tobacco is everyone's issue, regardless of smoke exposure.

Methods

Since I focus on outdoor smoke tobacco-free policies on University of Oregon's campus, the study consisted of an in-person survey of twenty-eight students from the University of Oregon between the ages of 18 and 23 (Table 2.1). Undergraduate students from the University of Oregon were chosen intentionally because of their age and proximity to smoking initiation, and also because the University of Oregon has an implemented smoke and tobacco free campus policy. This was done in order to test the influences of such a policy on perceptions of smoking. Participants were recruited using

e-mails to lists of student groups and flyers posted in buildings at the University of Oregon (Appendix C). All participants were surveyed using an in-person paper survey with seventeen questions for smokers and eleven questions for non-smokers (Appendix A). Each participant was surveyed individually and given an informed consent document to read before participating in the study. They then gave the surveyor verbal consent that they were willing to participate in the study (Appendix B). Participants received a ten dollar cash reward immediately following completion of the survey.

57% of the participants were non-smokers and 43% were either current daily smokers, former daily smokers, current social smokers, or former social smokers (Figure 2.1). There were fifteen males total and thirteen total females. Of the smokers, eight were males and four were females. Of the non-smokers, seven were males and nine were females. A social smoker, for the purposes of this paper, was defined as anyone who smokes less than daily and at least once a week, usually in a social setting such as a party or with friends on a class break. A daily smoker was someone who smoked every day. A former smoker was someone who had not smoked long enough to consider themselves quit or no longer a smoker.

Table 2.1: Age distribution of smokers and non-smokers.

Age	Smokers	Non-smokers
18	1	4
19	2	0
20	2	2
21	1	5
22	4	4
23	2	1
Total:	12	16

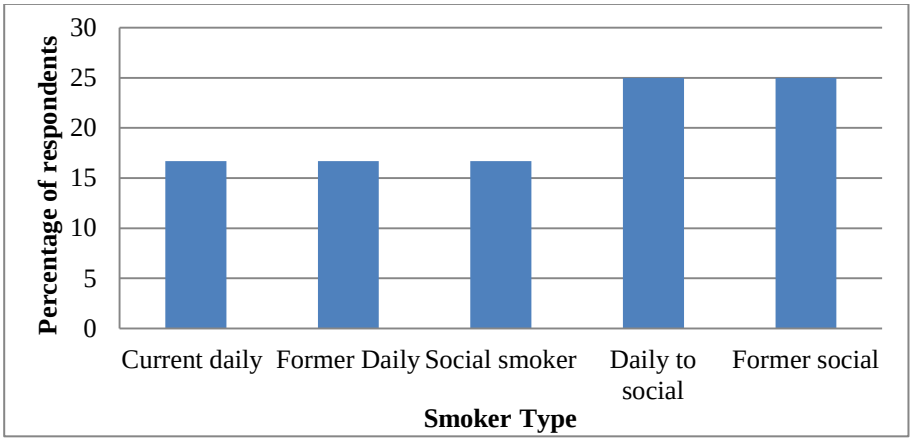

Figure 2.1: Distribution of types of smokers.

Chi-square tests were used to compare the smoking to the non-smoking group for certain questions to test for statistical differences in perceptions of environment. All other questions were analyzed using measures of central tendency and frequency. It is important to note that a major limitation of this analysis is the small sample size due to time and financial constraints. Additionally, there may be selection bias in who replied since they may be different from students who did not reply to the fliers or e-mails.

Consequently, statistical inference may be difficult to determine but worth attempting given the format of the data.

Results

The purpose of this study was to determine the impact of environmental influences on a young person's decision to begin smoking. It was hypothesized that the more a young person was exposed to smoking or tobacco use in their daily lives and environments, the more likely they would be to smoke. A chi-square test was run on certain questions in order to test the statistical significance of this hypothesis. The variables tested for statistical significance between smokers and non-smokers was whether or not the participants were able to smoke easily nearby their high school, whether or not they had immediate family who smoked, and whether or not they had other relatives who smoked.

First, I determined if there were statistical differences between smokers and non-smokers in terms of whom had immediate family members that smoked (Table 3.1). Although there were more smokers than non-smokers who had immediate family members who smoked, the chi-square test determined that the difference was not statistically significant ($p>.05$). I also tested for statistical significance between smokers and non-smokers who had relatives who smoked (Table 3.2). It was determined from the chi-square test that the difference between the two groups was not significant ($p>.05$).

Next, I wanted to determine if smoking was easily accessible near participants' high schools. The chi-square test run on this variable indicated that the results were not statistically significant (Table 3.3) ($p>.05$).

In this study, location of origin turned out to be an insignificant variable because it mostly reflected the demographics of the University of Oregon; the majority of the students came from Oregon, California and Washington with a handful of students from various other states near the Northwest.

I also hypothesized that implemented smoke and tobacco free policies would change students' perceptions of the social acceptability of smoking. Measures of frequency were used to test this hypothesis using two questions: What is your opinion of outdoor or indoor smoke and tobacco free policies? Are they effective at reducing rates of smoking in the included areas (example: University of Oregon's Smoke and Tobacco Free Campus)? The other question asked was: How do tobacco free policies (indoor and outdoor) change your perception of smoking? 71.4% of all participants reported that yes, smoke and tobacco free policies are effective at reducing rates of smoking in included areas. 21.4% found that they were not effective. 7.1% stated that had not noticed . To compare the smokers to the non-smokers, 66.7% of the smokers believed these policies were effective and 33.3% believed they were ineffective. Of the non-smokers, 75% reported thinking these policies are effective, 12.5% said they found them ineffective, and 12.5% said they had not noticed (Figure 3.1). Those who answered that, no, smoke-free policies are not effective, often wrote in the comments that while they do find the policies effective at reducing rates in the designated areas they marked "no" because it is still possible to smoke off campus or because they just think the policy is too restrictive or unethical.

When asked about change in perception of smoking after implementing a smoke and tobacco free policy, 85.7% reported now thinking of smoking as being socially

unacceptable, 32% reported finding smoking unhealthy, and 7% reported no change in perception (participants were allowed to choose more than one answer). Of the smokers specifically, 83% reported finding smoking less socially acceptable, 16.79% reported finding it unhealthy, and 16.79% reported no change in perception. Of the non-smokers, 87.5% reported finding smoking less socially acceptable, 43.8% found it unhealthy, and no one reported their perception being unchanged (Figure 3.2).

Table 3.1: Participants' responses to whether they have immediate family members who smoke.

Immediate family	Smokers	Nonsmokers	Total
Yes	6	5	11
No	6	11	17
Total	12	16	28

Table 3.2: Participants' responses to if they have relatives who smoke.

Relatives	Nonsmokers	Smokers	Total
Yes	12	6	18
No	4	5	9
No response	0	1	1
Total	16	12	28

Table 3.3: Participants' responses to if it was easy to smoke near their high school.

Nearby	Smokers	Nonsmokers	Total
Yes	6	9	15
No	5	6	11
No Response	1	1	2
Total	12	16	28

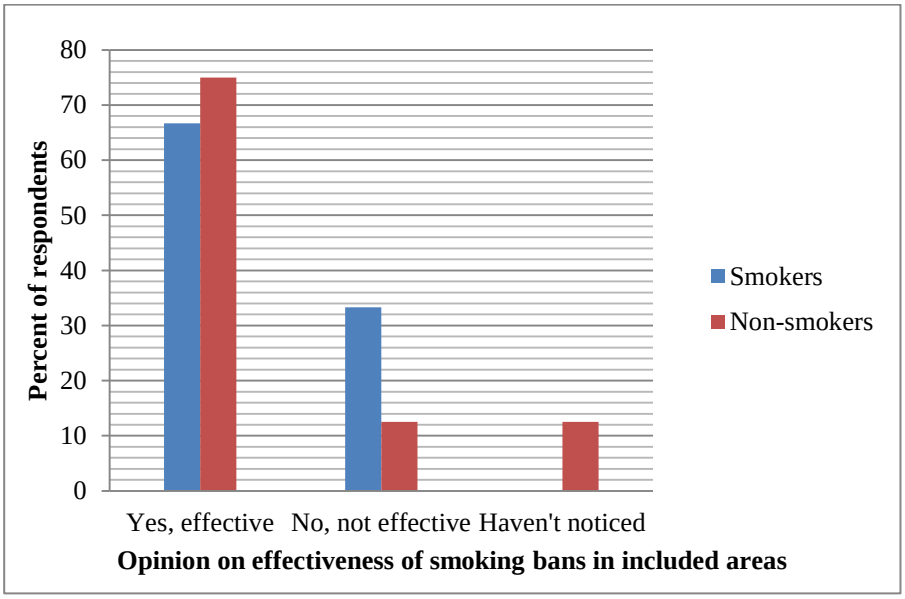

Figure 3.1: Opinions about smoke-free policy effectiveness in designated areas.

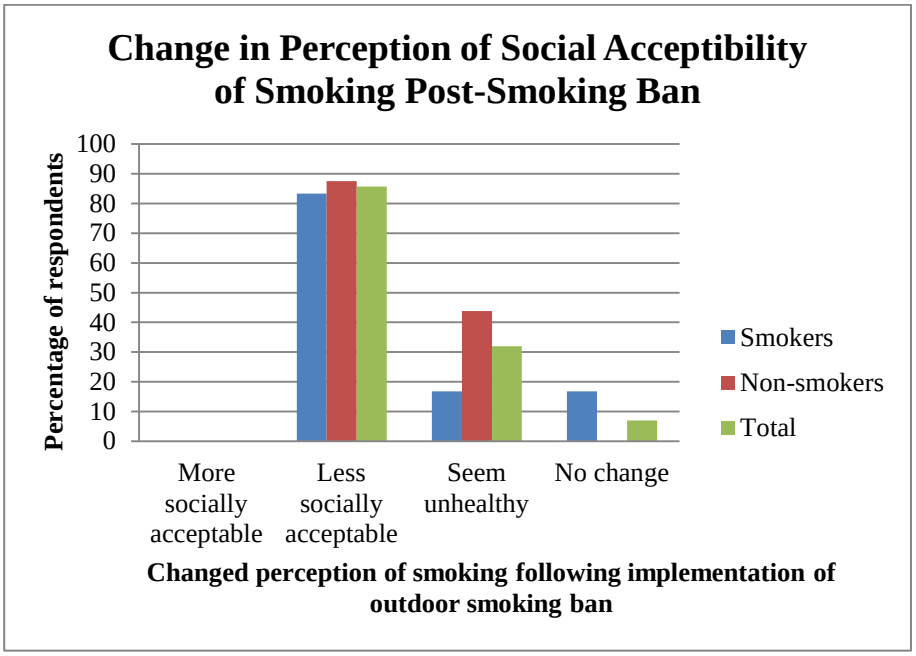

Figure 3.2: Response to question: How do smoke-free policies change your perception of smoking?

Additional data about smoking influences and behaviors was also collected. Smokers were asked what they believed their main influences were for beginning to smoke and non-smokers were asked to list why they believed they never started. The majority of the smokers stated that they began smoking because their friends smoked (Figure 3.3). Non-smokers stated that they never began primarily because they found it unhealthy, but also were just not interested or did not grow up around it (Figure 3.4).

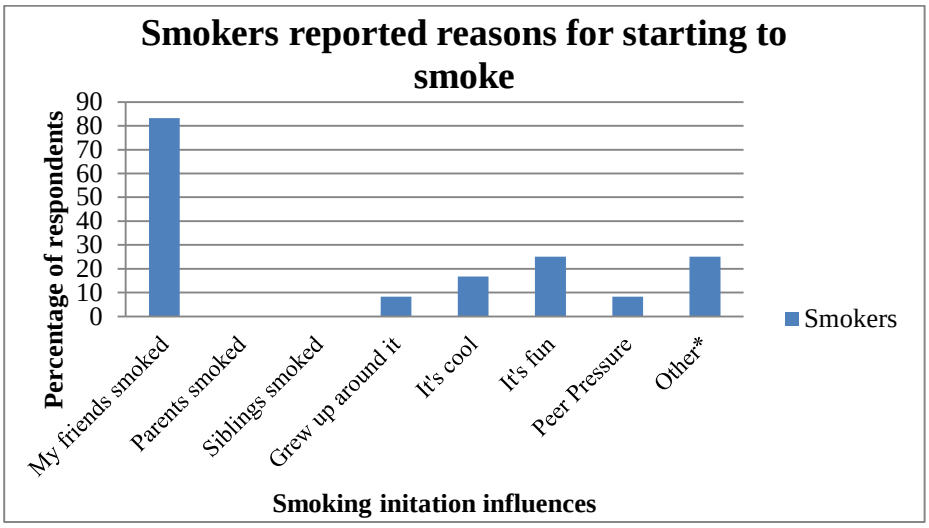

Figure 3.3: Smokers reported reasons for what they believed to be the main influences in
their smoking initiation. (*Other reasons listed: anxiety, workmates smoked, just wanted
to try it.)

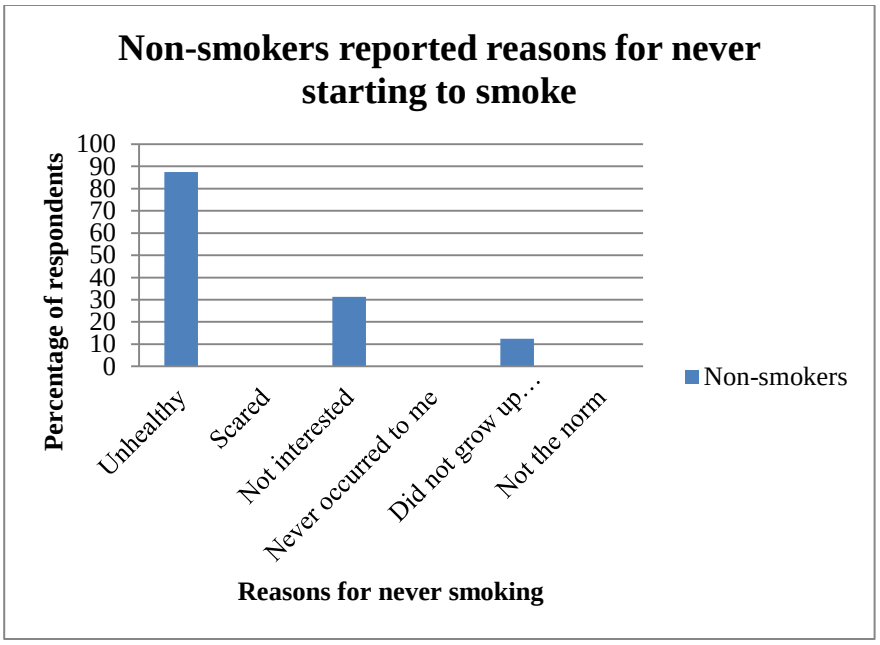

Figure 3.4: Non-smokers given reasons for why they decided to never start smoking.

Smokers were also asked that, if they quit or wanted to quit, what their motivations were. The majority stated that it was unhealthy, while others also said it was too expensive, they just did not want to anymore, smells bad, lack of urge or peer pressure to quit (Figure 3.5). Nine out of twelve (75%) of the smokers reported quitting or wanting to quit.

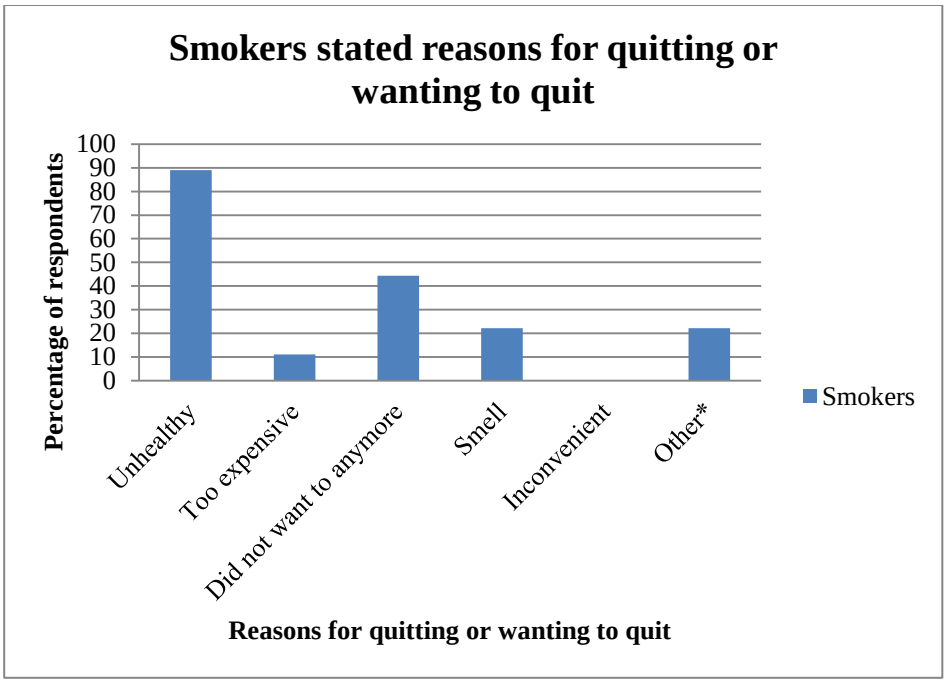

Figure 3.5: Smokers gave reasons for, if they had quit or wanted to quit, what the main reasons were.
*Other reasons listed: Lack of urge, peer pressure.

When smokers were asked if smoke-free policies impact their smoking behaviors, 91.7% reported that their behavior was unaffected while 16.7% reported smoking less as a result (Figure 3.6).

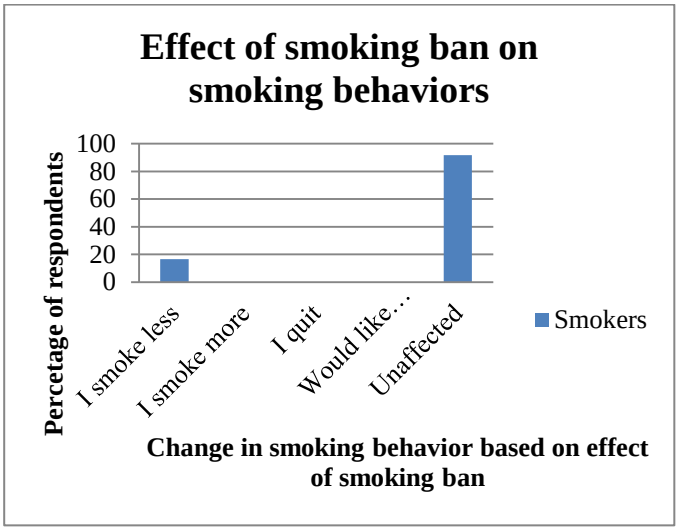

Figure 3.6: Smokers responses to how they felt their smoking behavior was impacted as a result of University of Oregon's smoke-free policy.

To compare smoke-free policies with tobacco policy outcomes, smokers were also asked if they still would have started smoking if the price of cigarettes was higher when they did start or if they would be inclined to quit now if the price rose. 66.7% of the smokers answered that they still would have begun smoking even the price was higher when they started (Table 3.4). 58.3% of smokers said they would not be inclined to quit if the price of cigarettes rose now (Table 3.5).

Table 3.4: Would you still have started smoking if the price of cigarettes were higher?

Smoking initiation if price were higher	Number	Percentage
Yes	8	66.7
No	4	33.3

Table 3.5: If the price of cigarettes rose now, would you be inclined to quit?

Inclination to quit if price rose	Number	Percentage
Yes	5	41.7
No	7	58.3

It was also found that ten out of the twelve smokers (86.7%) began smoking before or at age eighteen (Table 3.6).

Table 3.6: Reported age of smoking initiation

Age of smoking initiation	Number	Percentage
15	2	13.3
16	0	0
17	5	41.7
18	3	25
19	2	13.3

Analysis and Discussion

Given the results of the study, the first hypothesis that the more young people are exposed to smoking in their daily environments the more likely they are to smoke later on cannot be shown with statistical significance. While there were clear differences in the number of smokers who had immediate family members who smoked and non-smokers who did, the results were not statistically significant, likely due to the small sample size. 50% of the smokers had immediate family members who smoked while only 31.25% of non-smokers had immediate family members who smoked. In addition, the majority of the smokers surveyed indicated that their main influence for smoking initiation was that their friends smoked. This is important because at the ages of a high school student, they are likely more influenced by their friends' ideas and opinions than that of their parents. This indicates that these participants had exposure to smoking in their daily lives and it influenced them to try smoking. This study also reiterated the knowledge that most people begin smoking before or at age eighteen, as indicated by the CDC.

The results imply that the second hypothesis that implementation of smoke and tobacco free policies would change students' perceptions of the social acceptability of smoking is valid, given that 85.7% reported now thinking of smoking as being socially unacceptable and 32% reported finding smoking unhealthy as a result. As noted, even those who stated that they do not think smoking policies are effective at reducing rates of cigarette smoking often noted in their comments that this was because you could still smoke outside the boundaries or they just found the policy too restrictive, implying that the policy is still effective just perhaps unpopular.

In addition, over 90% of the smokers reported their behavior being unaffected by the implementation of the University of Oregon outdoor smoke and tobacco free policy, while 16.7% indicated that they did smoke less as a result. However, many of smokers had either already quit or are only social smokers, so this policy would not impact their current behaviors. This does stress the need to use these policies as preventive policies and not as a tool to encourage tobacco cessation. Once people have already started smoking, it is much harder to reverse the habit. Despite this, 75% of the smokers in the study had either quit or already or expressed a desire to quit. The most commonly cited reason for this was that it is unhealthy or they just did not want to anymore.

Even though most smokers reported having their behavior unaffected by the smoke-free policy, it does not appear that a change in price would have influenced their behavior either. Given that 67% of the smokers indicated they still would have started even if the price of cigarettes was higher at the time and 58.3% said they would not quit now if the price of cigarettes rose. This could, again, be due to the fact that not all of the

smokers surveyed were current daily smokers, enough for price to affect them. It does, indicate, however that price may not be a strong enough influence to keep someone from smoking. Since friends were listed as the primary influence for initiation, smoking is clearly more strongly socially tied and motivated.

As noted earlier, a major limitation of this study was having a small sample size due to time and financial reasons. Additionally, selection of participants was not random, so results may also suffer from selection bias. Although the students were purposefully selected from the University of Oregon to test a population under a smoke-free policy, it would have added to the research to have surveyed people from various regions of the United States where smoking laws are more or less stringent to find out what their exposure to smoking had been and if there were regional differences.

It would have been more useful to survey more current daily smokers to get more accurate data on effects on smoking behavior that outdoor smoke and tobacco free policies have as well as how behavior would be effected based on changes in price. However, it was very difficult to recruit smokers of any kind. Another limitation of the study overall was that the students surveyed were all ages eighteen and over and out of high school, most of them further removed from when they began smoking and perhaps gave less accurate answers about their influences. However, this was also a benefit in some cases given that many of the smokers had had time to reflect on the choices they made and were better able to identify why they began smoking.

In future studies, more questions should be asked about ease of access to cigarettes and other tobacco products. For example, could the surveyed students buy cigarettes without being carded? Was there a convenience store nearby that sold

cigarettes and other tobacco products? While exposure influences smoking behaviors, lack of access to cigarettes can limit their ability to begin smoking. It would also be beneficial to compare the behavior of smokers who were living under an outdoor smoking ban and smokers who are not. This could help determine if smoking bans do in fact help to change smoking behavior in some meaningful way. It would also be interesting to survey students of various tobacco-free campuses and those that allow smoking on campus (both smokers and non-smokers) to see if they have differing perceptions on the social acceptability of smoking.

Recommendations and Conclusion

Given the results of this study, I would recommend continuing to implement more outdoor smoke and tobacco free policies in public places, especially those which youth frequent. Many policies can help to reduce rates of smoking but, as seen in this study, expanding outdoor smoke and tobacco free policies actually change perceptions about smoking, making it seem more socially unacceptable. A lot of weight is often put on taxes as the most effective method of reducing smoking rates, but these do not actually change the norms around smoking, they simply make it less accessible. Since many of the smokers in this study said that price would not impact their desire to begin smoking and the main influence for their initiation was their friends, changing the desire and "coolness" of smoking could seriously impact the rate at which youth start smoking. Most people who smoke end up regretting it and would like to quit, as shown in this study as well, but quitting is very hard.

Preventing people, especially youth, from even starting will be the most effective method by which to reduce smoking rates in the United States. At the heart of this policy-making is giving people the longer and healthier lives that all humans deserve.

Appendix A

Questions:

1. Please select one of the following:

A. I am a current daily smoker.

B. I am a former daily smoker.

C. I have never been a daily smoker.

D. I am a social smoker.

E. I used to be a daily smoker and now only smoke occasionally.

F. I am a former social smoker.

2. How old are you? Please select one.

A. 18

B. 19

C. 20

D. 21

E. 22

F. 23

3. How do you gender identify?

Male Female Transgender Prefer not to answer Other:_____

3. At what age did you begin smoking? Please list.

_____

4. In which city did you attend high school?

City:_____ State: _____

If different from the city you went to high school in, please list the city where you began smoking:

City:_____ State: _____

5. Did anyone in your immediate family or any of your guardians smoke? (Circle one)

Yes No

If yes, please list the members who smoked: (Ex.: mother, sister, grandfather, etc.)

_____

_____

_____

_____

6. How many other relatives (non-immediate) smoke (or did smoke while you were growing up)? (Ex. aunt, uncle, grandparent, etc.)

_____
_____
_____
_____

7. Was smoking allowed on the grounds of your middle or high school?

Yes No

Please specify middle or high school or both:_____

8. If you could not smoke on school premises, could you smoke easily, near-by the school (for example, just around the corner or across the street)?

Yes No

Please explain if yes:_____

_____
_____

9. If you **do or *did* smoke**, why do you believe you started? What influenced you? Please circle all that apply.

A. My friends smoke(d)

B. My parents smoke(d)

C. My siblings smoke(d)

D. I grew up around it

E. It's cool

F. It's fun

G. Peer pressure

H. Other. Please list:_____.

Please explain:_____
_____
_____
_____

10. If **you don't smoke**, why do you believe you never started? What influenced you to never pick up a cigarette? Please circle one.

A. Unhealthy

B. Scared

C. Just not interested

D. Never occurred to me

E. Did not grow up around smoking

F. Not the norm

Please explain or list other reasons:_____
_____
_____
_____

11. If **you have quit smoking (or want to quit smoking)**, what most influenced your decision to do so?

A. Unhealthy

B. Too expensive

C. Just did not want to anymore

D. Smell

E. Smoking has become inconvenient, too many smoke-free areas.

F. Other:_____

Please explain:

_____
_____
_____
_____
_____

12. How do you think outdoor smoke and tobacco free policies affect your smoking behavior? (does it make you smoke less, want to smoke more, never even think about smoking?)

(Example: University of Oregon's Smoke and Tobacco Free Campus.)

A. I smoke less

B. I smoke more

C. I quit

D. I would like to quit

E. My habits are unaffected

Comments:_____
_____
_____
_____

13. What is your opinion of outdoor or indoor smoke and tobacco free policies? Are they effective at reducing rates of smoking in the included areas?

(Example: University of Oregon's Smoke and Tobacco Free Campus.)

A. Yes, effective

B. No, not effective

C. I haven't noticed

Comments:_____
_____
_____
_____
_____

14. **If you smoke**, do you smoke every day?

Yes No

If yes, how many cigarettes do you smoke per day?

1-4 5-9 10-14 15-19 20-25 1 pack

15. If **you smoke**, would you still have started if the price of cigarettes was higher when you first started smoking?

Yes No

16. If **you smoke**, if the price of cigarettes rose, would you be inclined to quit or consider quitting?

Yes No

17. How do tobacco free policies (indoor and outdoor) change your perception of smoking?

A. They make smoking seem more socially acceptable.

B. They make smoking seem less socially acceptable.

C. They make smoking seem unhealthy.

D. They do not change my perception.

Appendix B

University of Oregon Department of Planning, Public Policy and Management

Informed Consent for Participation as a Subject in "Effectiveness of Smoke and Tobacco Free Policies in Prevention of Youth Initiation"

Investigator: Sarah Sprague

Type of consent: Adult Consent Form- Verbal Script

Introduction

Thank you for your participation in the study. You are being asked to be in a research study of how someone's environment can change or influence their likelihood of smoking or not smoking. You were selected as a possible participant because you are between the ages of 18 and 22 and either smoke, do not smoke or used to smoke. We ask that you listen to the information being read to you from this form and ask any questions that you may have before agreeing to be in the study.

Purpose of Study:

The purpose of this study is to determine if creating more smoke free environments, specifically outdoor smoke free environments, will keep people (especially youth under age 18) from starting to smoke. You and the other participants in this study are students from the University of Oregon and there is expected to be 30 participants. Please note that I, as the responsible investigator, have a significant academic interest in this study as it is being conducted for my senior thesis project.

Description of the Study Procedures:

If you agree to be in this study, I will ask you to do no more than answer 17 short, written questions in a survey.

Risks/Discomforts of Being in the Study:

There are no foreseeable risks of participating in this study at this time. The study presents no more than minimal risk than you would experience in daily life.

Benefits of Being in the Study:

The purpose of the study is to identify solutions to reduce the rate of smoking among youth in the United States and therefore reduce the number of tobacco-related deaths. This will be done by determining if expanding smoke free policies can reduce the rate of smoking and smoking initiation in youth under 18. It could

help to prevent premature, tobacco-related deaths or health complications in the future. However, there are no direct benefits to you, as a participant, from participating in this study.

Payments:

You will receive ten dollars in cash upon completion of the survey. Cash will be handed to you before you leave the location of the survey.

Costs:

There is no cost to you to participate in this research study.

Confidentiality:

The records of this study will be kept private. In any sort of report we may publish, we will not include any information that will make it possible to identify you as a participant. Research records will be kept in a locked file. All electronic information will be coded and secured using a password protected file. Access to the records will be limited to the researchers; however, please note that regulatory agencies, and the Institutional Review Board and internal University of Oregon auditors may review the research records. In addition, you will not be asked to give your name to the researcher.

Voluntary Participation/Withdrawal:

Your participation in this study is voluntary. If you choose not to participate, it will not affect your current or future relations with the University. You are free to withdraw at any time, for whatever reason. There is no penalty or loss of benefits for not taking part or for stopping your participation. However, if you choose to withdraw from the study **before beginning the survey**, you will not receive the cash reward. You will be provided with any significant new findings that develop during the course of the research that may make you decide that you want to stop participating.

If you have seen me for free Nicotine Replacement Therapy (patches and gum) through Peer Health Education at the University Health Center, please note that participation in this study is not related to my work and/or the services you may receive at the Health Center. **Any decision to participate or withdraw from the study *will not affect* your access to services and products from the Health Center.**

***Dismissal From the Study:**

I, the researcher, may withdraw you from the study at any time for the following reasons: (1) withdrawal is in your best interests (e.g. side effects or distress have resulted, (2) you have failed to comply with the study requirements, or (3) the study sponsor decides to terminate the study.

Contacts and Questions:

The researcher conducting this study is me, Sarah Sprague. For questions or more information concerning this research you may contact me at 541-206-4964 or at sprague@uoregon.edu. If you believe you may have suffered a research related injury, contact me, Sarah Sprague, at 541-206-4964 who will give you further instructions. If you have any questions about your rights as a research subject, you may contact: Research Compliance Services, University of Oregon at (541) 346-2510 or ResearchCompliance@uoregon.edu

Copy of Consent Form:

You will be given a copy of this form to keep for your records and future reference.

Questions:

Do you have any questions for me at this time regarding the study or your participation in the study?

Statement of Consent:

Please read aloud the following: I have read (or have had read to me) the contents of this consent form and have been encouraged to ask questions. I have received answers to my questions. I give my consent to participate in this study. I have received (or will receive) a copy of this form.

Appendix C


Take a survey about smoking
Smokers, non-smokers, former smokers:
Ages 18-22 Welcome
Participants will be paid $10 in cash
Contact: sprague@uoregon.edu
or (541) 206-4964

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