An Evaluation of a Medical School Smoking Policy: A Student Research Project

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Abstract

A medical school at a Southeastern university implemented a tobacco free policy to promote a healthy environment for its employees, patients, and visitors. Eighteen months post policy implementation, undergraduate students in the Department of Health Education and Promotion evaluated the satisfaction, awareness, and perceived compliance/enforcement of this policy. To evaluate the policy, students collected 292 responses from a cross-sectional survey, conducted interviews with those implementing the policy, and conducted observations on campus. Results suggest improved awareness, satisfaction, and enforcement of a policy are related to effectiveness and that the student project helped students understand the importance and value of program evaluation.

Introduction

Cigarette smoking is the most preventable cause of morbidity and mortality in the United States (Centers for Disease Control and Prevention [CDC], 2011). Smoking also contributes to $193 billion in disease care costs and lost productivity in the United States. (Dube, Asman, Malarcher, & Carabollo, 2009). To reduce smoking rates and the rising expenditures, the U.S. Department of Health and Human Services (USDHHS) suggests a multi-level approach that includes health education and promotion, individual attention with follow up procedures for smokers, and, most importantly, policies to promote cleaner air and less second hand smoke (U.S. Department of Health and Human Services [USDHHS], 2010).

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Beyond the problems associated with tobacco use, smoking also causes concern for the public's health because of second hand smoke, also known as environmental tobacco smoke (ETS). ETS and first hand tobacco smoke share similar negative health consequences. Smoking policies, in addition to reducing the rate of smokers, reduce or eliminate ETS. Policy changes present the most effective way to reduce ETS (CDC, 2011). Recent trends show an increase in smoking bans in public places such as restaurants, bars, and worksites. Consequently, college campuses are beginning to recognize the need for comprehensive smoking policies. In a survey of 393 Health Center Directors at U.S. colleges, 81% of the respondents considered students' smoking on campus a problem (Wechsler, Kelley, Seibring, Kuo, & Rigotti, 2001). According to the 2010 Core Alcohol and other Drug Survey, 35.7% of students reported smoking in the past year (Core Institute, 2012). In addition, 23.3% of college students reported smoking in the past 30 days, with 12.5% reporting smoking cigarettes 3 or more times per week. Wolfson, McCoy, and Suftin (2009) conducted a Web-based study of North Carolina undergraduates from ten different universities that involved 4,223 participants. Eighty-three percent of respondents indicated they had been exposed to cigarette smoke in the past week.

The tobacco industry continues to target the college-age population in its advertisements by taking advantage of students' tendency to smoke cigarettes during binge drinking sessions. To intervene with this priority population, national health organizations have recommended comprehensive smoking policies that prohibit cigarettes on campus (Halperin & Rigotti, 2003). Preventive education programs have also resulted in reduced smoking rates (Borders, Xu, Bacchi, Cohen, & SoRelle-Miner, 2005). These efforts align with tobacco cessation goals of the American College Health Association (ACHA) and its Healthy Campus agenda, which serves as a foundation for developing plans promoting student health on college campuses (ACHA, 2011).

ACHA advocates that colleges and universities should become 100% smoke free indoors and outdoors (ACHA, 2011). Some college campuses have smoking policies that restrict smoking to beyond a certain number of feet from a building; however, medical campuses may enforce stricter policies because they are dealing with patients' health and medical care. According to Jamrozik (2004), schools of medicine, nursing and dentistry should be included in healthcare facilities and adopt and enforce smoke free policies across the campus. A smoking ban on a medical campus promotes cleaner air and improved health for students, faculty members, patients and visitors.

In order to reach the goal of a 100% smoke free environment, awareness, satisfaction, compliance, and enforcement of the policy are important factors that need to be addressed (Amerando, Becker, and Johnson, 2010).

For example, Hudzinski and Frohlich (1990) did a one-year longitudinal study on a medical campus, where administrators succeeded in implementing a smoking ban when these factors were considered. Additionally, researchers found that by surveying them pre-, during, and post-planning, a sense of program ownership was instilled in the general campus population and this improved policy satisfaction, compliance, and awareness.

Following a prompt from the state that banned smoking in bars and restaurants, a campus-wide smoking policy at a southeastern medical school campus was implemented. Eighteen months post-implementation, students enrolled in a Health Education and Promotion course sought to evaluate the effectiveness of the policy. Historically, smoking was permitted outside building entrances where smoking urns were provided. The new policy, which went into effect on January 1, 2009, prohibited smoking on campus, with the exception of two designated gazebos set back from main campus. The purpose of this study was to assess awareness, satisfaction, and perceived compliance/enforcement of the new policy. Specifically, an evaluation was conducted to determine if the following objectives were met:

1. By October 15, 2010, 75% of the population will be aware of the smoking policy on campus.

2. By October 15, 2010, 75% of the population will be satisfied with the smoking policy.

3. By October 15, 2010, 75% of the population will perceive appropriate enforcement to facilitate compliance.

Methods

The developed plan, approved by the Institutional Review Board at East Carolina University, included multiple methods to gather data regarding the campus population's awareness, satisfaction, and perceived compliance/enforcement of the policy. Methods included observations of smoking behavior, key informant interviews, and surveys of members of the campus population.

Questionnaire Development

A review of literature related to the research objectives was used to inform the measures for the questionnaire given to faculty, students, and staff on campus. Once the questions were developed, five doctorate trained faculty members and three tobacco researchers, including contributing authors, with expertise in evaluating health education programs served as the reviewers of face validity. Based on the reviewer's feedback, changes were made to the instrument. The questions on the final instrument focused on smoker and nonsmoker perceptions of policy awareness, policy satisfaction and policy compliance/enforcement.

Demographics

Demographic variables queried with the instrument were: sex, race/ethnicity; campus status (faculty member, staff member, student), and, if a student, the class year . Other descriptive variables collected included smoking status; number of cigarettes smoked in the last 30 days (for current smokers); number of hours spent on the campus per week; and whether or not they were raised in a smoking or non-smoking household.

Policy Awareness

Two questions were used to measure awareness of the new smoking policy. Survey participants were asked how they became aware of the policy, including nominal response options with instructions to check all that apply. Response options included signs, media, Internet/e-mail, word of mouth, administrators, and student groups. In addition, a dichotomous variable asking if the new smoking policy was advertised was included.

Policy Satisfaction

Questions using four-point Likert response options ranging from "strongly disagree" to "strongly agree" were used to measure participants' satisfaction with the policy. These measures included satisfaction with accessibility to smoking areas, fairness of new policy to smokers, and effect of the policy on smoking behavior. Two additional dichotomous questions were used to measure satisfaction with the policy: "Do you think there should be a smoking policy on campus?" and "Did you have input in the smoking policy?"

Perceived Policy Compliance/Enforcement

One four-point Likert scale question directly asking perceptions of enforcement was included, with response options ranging from "not enforced" to "strictly enforced". Additionally, perceptions of adherence were measured with a four-point Likert scale question with response options ranging from "no adherence" to "strict adherence". An additional dichotomous question (Do smokers comply with the smoking policy?) measured perceived compliance. The survey also included a question to measure awareness of programs available to aid smokers with compliance to the new policy.

Survey Methods

Five groups of students worked together to collect survey data as part of a class project. Each group collected at least 60 intercept surveys on the medical school campus. Convenience sampling was utilized by students placing themselves in high traffic areas, including the building entrance and near the food shop on the medical campus. Each surveyor explained the purpose of the study to those who were stopped and asked for their participation. After agreeing to participate, passive informed consent was acknowledged instead of a signed form. This was to ensure the confidentiality of the participants. The survey took approximately 10 minutes to complete.

The data from the completed surveys were entered into SPSS 18.0. Descriptive frequencies were used to determine if the evaluation objectives were met. Additional analyses were run to assess differences in awareness, satisfaction, and perceived compliance/enforcement between reported smokers and non-smokers.

Observations

Observations conducted by other student researchers took place during the time that surveys were collected or at a separate time by driving or walking through campus. Student researchers looked for signs announcing the smoking policy around campus. While gathering data for surveys, students also observed any smokers on campus and noted if they were using the designated gazebos. These data were recorded on a tally sheet designed to record the number of smokers within or outside designated smoking gazebos. Individual observations were combined into one data file and results are reported in aggregate form.

Key Informant Interviews

Student researchers conducted interviews with key informants. Such individuals were identified as faculty members who helped design the program and served as advocates for the no smoking policy. A literature search pertaining to the research objectives was conducted to develop the initial interview guide. Similar to the development of the questionnaire, an expert faculty review was conducted to establish face validity. Interviews clarified the history and timeline of the policy and specific marketing tools used. For example, to inquire about policy awareness, researchers asked: Were signs posted about the policy and location of smoking gazebos? If so, when were they posted and where? To measure satisfaction, key informants were asked: Were student and faculty involved in the planning or asked if a policy was necessary? To measure compliance and enforcement, key informants were asked: Was a task force created to enforce the policy? Interviewers took extensive notes during the structured interviews. These notes were subject to open coding, where key themes from the interviews were captured. In following the processed outlined by Strauss and Corbin (1990), axial coding was conducted to further delineate the major themes identified in open coding.

Results

Sample Population

Two hundred and ninety-two (n=292) completed surveys were included in the analysis. Seventy-two percent of the participants were female (Table 1). In the sample, graduate students made up 32% (n=94), faculty and staff made up 19% (n=56), and 48% (n=139) were undergraduates. Twenty-one percent (n=61) of the participants reported smoking cigarettes. The 61 smokers in the survey smoked a combined estimated total of 9,968 cigarettes in the past 30 days. This was an average of approximately five cigarettes per day for each smoker. Almost 3 out of 4 participants (n=214) were Caucasian and 15% (n=44) were African American. Forty-three percent (n=126) of participants said they spent 30+ hours a week on the medical campus. Forty-six percent (n=134) of participants said they grew up in smoking households.

Table 1

Demographics of Respondents

Characteristics	Number	Percentage
Sex		
Male	82	28.1%
Female	210	71.9%
Academic Classification		
Freshmen	6	2.1%
Sophomore	23	7.9%
Junior	55	18.8%
Senior	55	18.8%
Graduate Students	94	32.2%
Staff	41	14.0%
Faculty	15	5.1%
Other	3	1.0%
Race/ethnicity		
Caucasian	214	73.3%
African American	44	15.1%
Asian American	18	6.2%
Native American	8	2.7%
Multi Racial	4	1.4%
Hispanic/Latino	4	1.4%
Smoking Status		
Smoker	61	20.9%
Non-Smoker	231	79.1%

Key Informants

Key informants, as defined above, helped student researchers answer whether or not the objectives were met. With regard to policy awareness, they stated that information about the policy was handed out to people on campus with the state Quitline number. Key informants also talked about the importance of the signs being posted around the campus. Regarding policy satisfaction, one key informant said that the policy did not target satisfaction of smokers. They also did not have a student on the panel of nine that contributed to the making of the policy. Key informants set up a friendly informers program to help with the compliance and enforcement of the policy. These individuals are faculty and students who tell others about the smoking policy on campus, as well as provide gentle reminders of the policy to those who are not in compliance.

Policy Satisfaction

Overall the policy met the objective of 75% of the total people surveyed being satisfied with the policy. Non-smokers were more supportive than smokers of the policy (89% [n=206] versus 11% [n=25], respectively). When looking at smokers alone, they did not meet the 75% satisfaction objective because only 53% (n=32) of smokers indicated that the policy was fair. Eighty-one percent (n=237) of all people surveyed agreed that the campus should have a smoking policy and seventy-nine percent (n=231) considered the policy to be fair. Student surveyors noted that participants appreciated not being bothered by second-hand smoke, especially when entering the building. Even though most participants agreed that there should be a smoking policy on campus, only 7% (n=20) of those surveyed said they were asked for input on the smoking policy.

Policy Awareness

The policy awareness objective was also met because over 75% of the people surveyed knew about the policy through at least one form of advertisement. Eighty-four percent (n=194) of nonsmokers and 100% (n=61) of the smoking population reported being aware of the policy. Participants indicated all ways they became aware of the policy, specifically they became aware of the smoking policy through signs (n=170), media (n=44), internet/e-mail (n=68), word of mouth (n=137), administrators (n=64), and student groups (n=24). Observations of the surveyors indicated that signs were posted throughout campus, in the parking lot and a banner hung on a building near a main entrance. Participant data indicated posted signs were the most common method for policy awareness. Although most participants indicated they were aware of the policy, only 49.2% (n=30) of smokers were aware of smoking cessation resources available to them. Key informant interviews said the friendly informers periodically gave out cards, water bottles, and pens with the Quitline number on them. The majority of smokers reported that the policy did impact their smoking habits.

Perceived Policy Compliance/Enforcement

Based on the data collected, the third objective for this study (75% of participants agreeing that the policy is enforced on campus) was not met. Findings suggest that only 53% (n=155) of participants agreed or strongly agreed that smokers adhered to the policy (Table 2). A majority of smokers (64%, n=39, data not shown) felt the smoking areas were accessible. Observations on campus noted that smokers were observed using the gazebos, although some smokers were observed on campus in violation of the policy. When questioned about how well the policy was enforced on campus, 54% (n=159) of people surveyed agreed or strongly agreed that the smoking policy was enforced on campus (see Table 2), and 53% (n=155) felt smokers were complying or adhered to the policy. Additionally, only 48% (n=111, data not shown) of non-smoking participants agreed that the smoking policy was enforced.

Table 2

Respondents Perceived Compliance/Enforcement to Survey Policy

	Strongly Agree	**Agree**	**Disagree**	**Strongly Disagree**
	n (%)	**n** (%)	**n** (%)	**n** (%)
Is the smoking policy enforced?	41 (14%)	118 (40%)	84 (29%)	49 (17%)
Do smokers adhere to the policy?	27 (9%)	128 (44%)	103 (35%)	34 (12%)

Discussion

The purpose of this study was to evaluate a smoke free policy on a medical school campus at a large southeastern university. Findings from this study indicate that the smoking policy on this campus was successful in some aspects, but lacking in others. While those on the campus were aware of the policy and generally satisfied with it, particularly the non-smokers, perceived compliance and enforcement of the policy were lacking. Internal validity was demonstrated as many of those on campus indicated that they saw the signs or were made aware of the policy by programmatic efforts.

A majority of smokers were aware of the telephone Quitline, which was advertised on cards, water bottles, pens, and temporary posters. As a result, many people indicated that they saw a change in the number of people smoking outside of buildings once the policy was implemented. Even though smokers were aware of the Quitline for support in quitting, data indicated that adequate information about other cessation resources was not provided. It is interesting to note that nonsmokers were more satisfied with the new smoke free policy than the smoking population. However, the smokers were more aware of the new policy than the nonsmokers. Each of these areas provides fruitful areas for future research. Key informants indicated that smoker satisfaction with the policy was not a priority in its development. Additionally, perhaps more smokers are aware of the policy because it directly relates to their behaviors. Policy awareness among nonsmokers could be useful for enforcement as friendly informers.

From reports and direct observation, the majority of smokers were using the designated gazebos. The policy has seemingly helped to improve the health of the campus but all the stated objectives were not met. Based on the data, the researchers made the following recommendations to improve policy implementation:

1. Additional e-mail contacts to faculty members, staff members, and students of the policy would increase awareness.

2. Increasing the number of students, and staff members serving as friendly informers could also improve awareness.

3. Using respected, well-known campus figures as informers may increase compliance and enforcement.

Although 100% of smokers were aware of the policy, it was not sufficient to lead to compliance, suggesting the need for additional strategies. Also to demonstrate support, additional effort should be made to make the population aware of cessation programs availability. Research from Hudzinski and Frohlich (1990) suggested a key to planning and implementing a successful program is to ensure that the population takes ownership in the early stages. Understanding this principle suggests it is wise to seek input from a larger portion of the population prior to implementation. The key informants said they did not seek input from the students on campus, even though the students make up a large portion of people on campus. Had committee members surveyed the campus population during the planning phases, and then used some of their suggestions, it is possible there may have been a greater sense of program ownership, a more successful policy implementation and ultimately, greater satisfaction. Student input could also have created a more successful friendly informer program. Evidence suggests if students saw that their input was valued and put into action, they would want to protect the policy that they helped create (Hudzinski & Frohlich).

To achieve the goals of a completely tobacco free environment as outlined by the American College Health Association, strong leadership at the university and community and surrounding areas will need to support and promote tobacco free policies. The comprehensive policy should address compliance, prevention, and cessation. The American College Health Association also recommends distributing the policy on an annual basis in employee and student handbooks, on Websites, and other communication channels used by the university. This is very important for college populations because of their fluid student population. Additionally, clear notification of policies needs to be provided to parents, visitors, and alumni of the college or university. Another important aspect of the policy is to develop and maintain a task force that will inform, enforce, and promote the policy on campus, as well as address any problems or concerns pertaining to the policy. The task force should be representative and should consist of students, health professionals, faculty, human resources, campus police, and other important stakeholders (American College Health Association, 2011).

Implications and Limitations

While this study indicates promising results regarding implementation of a smoke free policy on a medical school campus, it is not without limitations. Limitations include the use of a convenience sample and possible bias of self-reporting data. Also the snapshot perspective provided with cross-sectional data limits the findings. It is recommended future research evaluate over the course of the implementation which may yield additional findings. In addition, reliability and validity analysis for the instrument used was beyond the scope of the student project. Such analysis would enhance findings.

A practical opportunity to apply the skills and knowledge learned in class was provided by using the students as the researchers in evaluations of campus policy. Implementation of a smoking policy on a health sciences campus is challenging. Using appropriate input and involvement of students, faculty members, and staff members increases the possible benefit. This study demonstrates how student projects that include a review of literature, development of measurement objectives, and evaluation of the current policy can provide methods to improve a program as it helps students learn the value of program evaluation. With regard to smoking policy implementation, results indicate awareness, satisfaction, and enforcement of a policy are related to effectiveness.

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