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ABSTRACT

Smoking among college students is on the rise, particularly among women and minorities. This paper explores smoking among college women, reviews different types of smoking cessation interventions, and describes a newly developed interactive Web site that combines tailored smoking cessation information with other health information in an attempt to reduce smoking among college-age women. A recent survey of about 14,000 college students found that almost half of them used tobacco products in the last year, and one third currently use tobacco products. Twenty-eight percent of college smokers started smoking regularly in college. College women are more likely to smoke regularly and have difficulty quitting than are college men. Young women who smoke face more health risks than do men. In addition to the risks of heart, lung, and kidney disease, women face smoking-related pregnancy risks, an increased risk of blood clots associated with birth control pills, increased risk for cervical cancer, and an increased risk of breast cancer, among other risks. This paper suggests that the media may play some role in helping tobacco companies to target women and ethnic minorities. Students have demonstrated a lack of interest in campus cessation programs. Three-fourths of young Internet users (15-24 years) have used the Internet to search for health information. (Contains 50 references.) (Author/NB)

USING THE WEB TO PROMOTE SMOKING CESSATION AND HEALTH FOR COLLEGE-AGED WOMEN

A paper presented at the Annual Meeting of the League for Innovation in the Community College, Boston, MA, March 16-20, 2002.

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Abstract: Smoking among college students is on the rise, particularly among women and minorities. We explore smoking among college women, review different types of smoking cessation interventions, and describe a newly developed interactive website that combines tailored smoking cessation information with other health information in an attempt to reduce smoking rates among college-age women.

Keywords: Smoking cessation; Tobacco; College students; Females; Health Education; Interventions; Internet; Behavior modification

Smoking among College Students

Smoking is the leading cause of preventable death and disease in the United States. Still, despite all of the health information available, tobacco use among college students is on the rise, particularly among women and minorities. A recent survey of about 14,000 college students found that almost half of them used tobacco products in the past year, and one third currently use tobacco products. While just 11% of college smokers reported having their first cigarette in college, 28% started smoking regularly while in college.[1] Most students who started smoking while in college did so during their first or second year.

To reach college-age women, we developed an interactive website, www.collegehealth.net, that combines smoking cessation information with health information that is of particular interest to this age group.

The Effects of Smoking on Women

Currently, smoking rates are the same for men and women, but college women are more likely than men to smoke regularly and have difficulty quitting.[2,3] Female smokers are of particular concern because young women who smoke face more health risks than do men. In addition to the risks of lung, heart, and kidney diseases:

- Smoking-related pregnancy risks include premature birth and poor fetal outcomes.[4,5]
- Women who take birth control pills and who smoke 15 or more cigarettes a day increase their risks for developing dangerous blood clots in their limbs (deep venous thrombosis) or lungs (pulmonary embolism).[6,7]
- Smoking can double or triple a woman's risk for cervical cancer.[8,9]

- Smoking may increase the risk of breast cancer among some women.[10]
- Smoking increases risk for osteoporosis by interfering with how the body absorbs calcium and vitamin D during the critical years of bone formation, as well as by interfering with estrogen metabolism.[11,12]
- Smoking is often accompanied by other substance abuse[13,14], which, in turn, is linked to high-risk sexual behaviors.[15,16]
- Young women who smoke are much more likely to suffer from headaches, insomnia, nausea, and nervousness than nonsmokers, although researchers are uncertain whether smoking is the direct cause. [14,17,18]
- Because many women smoke to lose weight, smoking is linked to eating disorders.[19]

Minority women are at particular risk because rates and risk factors for cardiovascular disease and cancer are much higher among women of certain minority groups. Although smoking rates are lower among minority college women (32% for whites, 22% Latinas, 20% Asians and 11% African Americans), reasons for these differences are unclear and may reflect underreporting of smoking.[20]

Smoking and the Media

The media may play some role in targeting women and ethnic minority groups. Tobacco companies work harder to advertise and promote their products to racial/ethnic minorities, youth, and women. Higher densities of tobacco billboards exist in minority communities and cigarette advertising expenditures in youth magazines increased 33% after the Master Settlement Agreement.[21] Women are targeted with themes of social

desirability and independence through ads featuring slim, attractive, and athletic models.[22]

It is likely that many young women may not fully appreciate the connections between tobacco and their personal health. Women's magazines are the main source of health information for women, but many of the leading magazines for young women avoid publishing stories on the risks of tobacco smoking so as not to offend cigarette manufacturers who buy advertising[23] (recent issues of Elle and Allure magazine each contain 3 full-page tobacco advertisements targeting young women). If this trend continues, we can expect higher smoking rates and smoking-related illness among women.

Challenges in Addressing Student Smoking

Most college smokers have tried to quit,[24] but few are successful.[1] Half of student smokers have tried to quit in the past year. Teens and young adults are especially prone to overestimating their likelihood of successful quitting and underestimating the chances of developing a smoking-related illness.[25] Studies show that most (77%) college students know and are concerned about the future health effects of smoking, but few (56%) report that health effects they may currently feel, like decreased stamina, would get them to quit.[1] Another recent survey found that nearly all (97-98%) of college students surveyed felt they already knew about the adverse health effects of smoking and most (86%) did *not* want more information about adverse effects of smoking.[1]

Other obstacles to getting students to quit smoking include:

- Smokers think they will quit after graduation

- Smokers see themselves as infrequent or occasional smokers, not as being addicted to nicotine
- Many occasional smokers are women who smoke to control their weight
- Students smoke in response to stress
- Colleges typically have limited personnel and financial resources.
- Students value their ability to 'quit on their own'
- Concern about the difficulty of quitting.[26]

College Smoking Cessation Services

More than half (56%) of colleges nationwide offer some type of smoking cessation program, with support groups being the most common service offered.[27] However, there is a disparity between the large numbers of students who attempt to quit smoking and the availability and participation in smoking cessation programs on many campuses.[27] A survey of 393 student health directors of colleges and universities from around the nation found that 85% saw student smoking as a problem; those at public institutions were more likely to see smoking as a major problem, and schools whose health administrators perceived smoking to be a problem were most likely to offer smoking cessation programs. Most colleges (81%) prohibited smoking in all public areas. Only 27% banned smoking in all indoor areas, and more than half (55%) allowed smoking in private areas.

Nonetheless, schools report little student demand for their cessation services--88% had no waiting list for offered programs, and 6% had discontinued programs due to lack of demand.[27] Students also demonstrated a lack of interest in alcohol prevention programs.[28] In contrast, young women have shown great interest in participating in a

computerized assessment program used to guide counseling about birth control options [29,30] as well as seeking out information on the internet.

Smoking Cessation Interventions--What works

Little is known about how to best present smoking cessation information to college-aged women. However, there is a considerable literature about smoking cessation programs among adolescents (under 18 years) and adults.[31,32,33] Among adolescents, approaches that focused on social reinforcement, social norms, or developmental orientation were more effective than those that simply provided factual information about the effects of smoking.[34] Factors associated with successful adult cessation included a personalized approach, consistency of delivery, repeated help, and firm messages delivered over an extended period of time.[35] Interventions that addressed the social context of smoking were more effective than those which provided generic information. Interventions that used personal, interactive interventions (such as smoking cessation clinics) have produced the highest efficacy in terms of long-term abstinence from cigarettes,[36] but have had low participation rates. Interventions based on the Stages of Change model, which defines a continuum of readiness to change behaviors including pre-contemplation, contemplation, preparation, action, and maintenance, have been more effective than those that did not. Yet it is unclear how well these adult or adolescent tobacco cessation models are transferable or applicable to young adults.[37]

Historically, adult smoking cessation interventions were based on providing information about the harmful effects of tobacco use.

Web-based interventions

Computer-generated health behavior interventions have been shown to be effective,[38,39, 40,41] with tailored interventions being more effective than either untailored interventions or those that target specific population groups. These interventions have the additional benefit of being widely accessible to college-aged women. The recent Pew Internet Health Study found that people prefer the anonymity of the web when dealing with sensitive health issues.[42]

Interactive stage-based expert systems for smoking cessation have been developed under the premise that an intervention will be more effective the more closely it matches the needs of the client.[43,44] One such system provides computer-generated, personalized letters based on information about the smoker's stage of change, decisional balance, and process of change. This system was more effective than stage-matched, non-interactive programs[45] and outperformed manuals and telephone-counselor calls,[46] achieving over an 80% participation rate and a 25% point-prevalence abstinence rate at 24 months (compared to 11% in the control group).[47]

Use of the Internet:

Additionally, Internet use among young women is very high, with many women reporting that they use the Internet to seek out information. Though usage rates remain lower among underserved populations, 99% of private high school girls and 83% of 'disadvantaged' urban girls used the Internet in 1999.[48] Over 65% of African Americans and 55% of Hispanics had Internet access at home in 2001.[49] Three-fourths of young Internet users (15-24 years) have used the Internet to search for health information, 19%

of whom looked up information on smoking.[49] Hispanics and African Americans are more likely than whites to use the Internet to obtain health information.[42,50]

Web-based Smoking interventions: What's out there?

There have been many websites developed in the past to help a smoker through his or her quit attempt (Table 1). However, most of these websites target either adults or teens and not college-aged women. These websites contain a variety of interactive features (defined as anything with which the user can interact beyond the usual conventions of a static information- based website), including printable worksheets, self-assessments with computer generated feedback, and online chat services. However, none of the websites assessed were tailored according the user's other health concerns, and few were tailored according to their stage of change.

Our goal with www.collegehealth.net is to reduce smoking rates among college-aged women. To accomplish this, we first needed to get their attention. To attract students to the site and engage them in the topic of smoking cessation, we combined smoking intervention information with topics of personal interest to female college students, such as birth control options, stress management, sexually transmitted diseases, and substance abuse. These topics were elicited through the conduct of focus groups held among college students in the Boston area in 2000-2001.

The www.collegehealth.net website provides risk assessment instruments, tailored feedback, and practical tips to improve health. Tailoring is performed at several levels, including the user's readiness to quit (stage of change), amount smoked, self-perception of smoking habits, pros and cons of quitting, and triggers of smoking. Additionally, the benefits of smoking cessation are reinforced within each of the other health topic

modules in an attempt to create demand for the smoking cessation portion of the website. This website is currently undergoing testing at 4 colleges in the Boston area (Bunker Hill Community College, Simmons College, Northeastern University, and Emerson College). Participating students at our recruitment sites are mostly computer literate, and our recent survey found that 96% (24 out of 25) of female students who smoked had web access at either their school, home, or office. The principal outcome measure will be quit rates at 3 months. We will also track whether the website moves women along in terms of their stage of change (for example, from contemplation to action).

Following testing, we hope to make this site available to community colleges through the American Association of Community College. By offering the site to community college students, either through the colleges' web pages or as a part of the college health center's services, we hope to decrease smoking rates among these students.

For more information about this project and how your college can become involved in this project, please contact Dr. Nananda Col at ncol@partners.org.

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