



Causal Factors of Smokeless Tobacco Use among College Students: A Literature Review

Abstract

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Objectives: This paper presents a literature review that explores the causal factors of smokeless tobacco use among college students in the United States. **Methods:** A literature search was conducted among national and international peer-reviewed literature in the following databases: Academic Search Premier, CINAHL Plus with Full Text, Education Resource Information Center (ERIC), MEDLINE, and PsycARTICLES. A manual search was performed to obtain relevant articles within selected journals. **Results:** Of the five reviewed studies, three indicated that participation in intercollegiate sports is a causal factor that has a significant relationship with smokeless tobacco use among college students. Two of the reviewed studies provided evidence that peer influence is closely related to smokeless tobacco use among college students. Finally, one of the reviewed studies showed that school type was also an important causal factor relating to college students' smokeless tobacco use. **Conclusion:** The findings from this literature review indicate that future smokeless tobacco use prevention efforts targeting college students might benefit from incorporating intercollegiate sports participation, peer influence, and school type into multi-component programs that focus on the different causal factors.

Introduction

Smokeless tobacco products are commonly classified as snuff or chewing tobacco (Tomar & Winn, 1999). Moist snuff is finely ground and sold in loose form or packaged like tea bags, while chewing tobacco is relatively coarse. Both types are placed in the oral cavity either between the lip and gum or in the inside of the cheek (Monson & Beaulieu, 2011). Nowadays, more and more people have started to realize the health risks associated with smokeless tobacco use. People who use smokeless tobacco are more likely to suffer from oral lesions, oral cancer, gingival recession, and loss of tooth structure (National Cancer Institute, 1992). The population among college students who are smokeless tobacco users is increasing rapidly. According to the 2008 National Survey on Drug Use and Health, among all age groups, those aged 18 to 25 have the highest rate of current smokeless tobacco use (Substance Abuse and Mental Health Services Administration, 2009). This also indicates that the initiation of smokeless tobacco use at a younger age increases the likelihood of progression to more frequent use (Gottlieb et al., 1993). For years, researchers have been searching for a better understanding of smokeless tobacco use among college students. However, to our knowledge, no review studies have been conducted that examine the causal factors of smokeless tobacco use. The purpose of this paper is to conduct a literature review that examines the causal

factors that are associated with college students' smokeless tobacco use.

Methodology

Data Sources

An in-depth literature search was conducted using the following electronic databases: Academic Search Premier, CINAHL Plus with Full Text, Education Resource Information Center (ERIC), MEDLINE, and PsycARTICLES. Three groups of search terms were used; they included: (1) smokeless tobacco use and (2) college student. All of these search key words were entered at the same time. The electronic search was supplemented by a review of relevant bibliographies and consultation with experts. The search was confined to peer-reviewed research articles that had been written in English. All of the articles regarded smoking behavior as an outcome variable. The search period was set from January 1991 to January 2011.

Study Selection

The inclusion criteria used were based on studies that focused on the factors that have direct relevance for college students' smokeless tobacco use. The literature search generated citations for 10 studies. These studies were then appraised for relevance, methodological rigor, and trustworthiness, and only those with significant

findings were included. Five quantitative studies were selected to specifically illuminate the complexities of the causal factors and how those influence college students' smokeless tobacco use.

Analysis

After extracting the raw findings from each study, thematically grouping similar findings and merging similar themes, three major themes related to college students' smokeless tobacco use emerged: (1) Participation in intercollegiate sports, (2) Peer influence, and (3) School type. Table 1 shows the detailed analysis of the five selected studies.

<Table 1 Insert Here>

Theme 1: Participation in intercollegiate sports

As shown in Table 1, three of the reviewed studies identified the relationship between participation in intercollegiate sports and smokeless tobacco use. The findings of these studies indicate that participation in intercollegiate sports is a causal factor that has a significant relationship with smokeless tobacco use among college students.

Hildebrand, et al. (2001) indicated in their study that athletes have higher rate of smokeless tobacco use than nonathletes. And this opinion was supported by the analysis result from Green, et al. (2001) that over 80% of students-athletes use smokeless tobacco. Morrell, et al. (2005) explored a little deeper and explained that college students were more likely to be lifetime smokeless tobacco users or current smokeless tobacco users if they participated in intercollegiate sports. The reason why athletes are more likely to be current smokeless tobacco users is that they may believe that smokeless tobacco provides a nicotine "high" without compromising their athletic performance (Morrell et al., 2005).

These studies provide evidence that, among college students, there is a significant relationship between intercollegiate sports participation and smokeless tobacco use. College students who are athletes are more likely to be smokeless tobacco users.

Theme 2: Peer influence

Two of the reviewed studies highlighted the major role of peer influence college students' smokeless tobacco use. Most of these research findings provide evidence that peer influence is closely related to smokeless tobacco use among college students.

Morrell, et al. (2005) suggested that there was a relationship between smokeless tobacco use and peer influence. Peer smokeless tobacco use was a significant predictor of lifetime smokeless tobacco use. Results indicated that students whose friends used smokeless

tobacco were more likely to use smokeless tobacco themselves. When more than 10% of students' peers used smokeless tobacco, they were more likely to be lifetime smokeless tobacco users, and when more than 30% of students' peers used smokeless tobacco, they were more likely to be current smokeless tobacco users (Morrell et al., 2005). Lopez (1993) focused on different ethnic groups and showed in the study that of Anglo-American males, 64% indicated that friends encouraged them to use smokeless tobacco, and of the Mexican-American male users, 38% were encouraged by a friend.

Both of these studies found that peer influence is closely associated with college students' smokeless tobacco use.

Theme 3: School type

Sanem et al. (2009) indicated in their study that school type was also an important casual factor relating to college students' smokeless tobacco use. In their study, results showed that students at two-year colleges reported current and daily use of smokeless tobacco at significantly higher rates than students at four-year colleges. Students at two-year colleges were 1.7 times more likely to report current smokeless tobacco use and 1.6 times more likely to report daily smokeless tobacco use compared to four-year college students. After controlling for all other factors, attending a two-year college predicted increased current and daily smokeless tobacco use (Sanem et al., 2009).

Conclusion

First, college students' smokeless tobacco use is closely associated with their participation in intercollegiate sports. The rate of smokeless tobacco use among college athletes is higher than nonathletes. And college students who are athletes are more likely to use smokeless tobacco currently or during their lifetime than those who are not athletes. Another conclusion that can be drawn from these studies is that peer influence plays an important role in college students' smokeless tobacco use. Peer smokeless tobacco use was a significant predictor of lifetime smokeless tobacco use. Students whose friends used smokeless tobacco were more likely to use smokeless tobacco themselves (Morrell et al., 2005). The other conclusion that can be reached from the studies reviewed is that school type also had a strong association with smokeless tobacco use among college students. Students at two-year colleges were more likely to report current smokeless tobacco use and daily smokeless tobacco use compared to four-year college students.

Limitations and Recommendations

It is important to note that among the five studies selected for this literature review, the majority of the

results depended upon the validity of college students' self-reports of smokeless tobacco use. These studies took no precautions to ensure that the respondents were providing honest and truthful answers and the degree to which underreporting occurred is unknown. The reviewed studies might not have captured all of the racial/ethnic differences in terms of the efficacy of smokeless tobacco use interventions among minority populations. Future smokeless tobacco use intervention studies involving multiple racial/ethnic groups should provide information by race/ethnicity. Despite the limitations of this literature review, as discussed above, this study contributes to the literature on smokeless tobacco use by providing insight into the causal factors among college students. Identifying these causal factors can help researchers develop long-term smokeless tobacco use prevention programs.

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Table -1

| Authors and Year | Study | Sample | Methods | Findings |
|--------------------------------|--|---|--------------------------------------|---|
| Sanem et al., 2009 | Differences in Tobacco Use Among Two-Year and Four-Year College Students in Minnesota. | 9,931 students at two-year and four-year colleges in Minnesota | Online Survey and paper-based survey | Respondents at two-year colleges reported current and daily use of smoking and smokeless tobacco at significantly higher rates than respondents at four-year colleges. |
| Morrell et al., 2005 | Predictors of Smoking and Smokeless Tobacco Use in College Students: A Preliminary Study Using Web-Based Survey Methodology. | 21,410 college students | Web-based survey | College students are more likely to be lifetime smokeless tobacco users or current smokeless tobacco users if they participate in intercollegiate sports. Athletes are more likely to be current smokeless tobacco users. There is a relationship between smokeless tobacco use and peer influence. |
| Hildebrand et al., 2001 | Comparison of Patterns of Tobacco Use Between High School and College Athletes and Nonathletes. | 1,290 college students | Paper-based survey | Athletes have higher rate of smokeless tobacco use than nonathletes. |
| Lopez, 1993 | Smokeless Tobacco Consumption by Mexican-American University Students. | 65 male and 83 female Mexican-American college students and 118 female and 59 male Anglo-American college students. | Paper-based survey | Of Anglo-American males, 64% indicated that friend encouraged them to use smokeless tobacco. Of the Mexican-American male users, 38% were encouraged by a friend. |
| Green et al., 2001 | NCAA Study of Substance Use and Abuse Habits of College Student-Athletes. | 13,914 Athletes from 30 sports competing at 991 NCAA Division I, II, and III institutions. | Paper-based survey | Over 80% of students-athletes use smokeless tobacco. |