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Prevalance of Waterpipe Tobacco Smoking Among University Student Athletes in the United States

Abstract

Purpose: The purpose of this study was to determine the 30-day, previous year, and lifetime usage of waterpipe tobacco use among athletes within a Midwestern university. The prevalence of waterpipe smoking suggests that this form of tobacco use is becoming an epidemic in the United States.

Data Sources: This study used a convenience sample of 59 college students who were English-speaking and 18 years or older. These students were enrolled in the Winter 2013 semester athletic program. The athletes completed a survey that was previously used and created by Brian Primack and reprinted with the author's written consent. The following demographic measures were assessed: age, gender, race, residence, and self-reported grade point average.

Conclusions: Ten percent of the athletes intended to smoke at least once in the next 12 months. Statistically significant correlations were found between perceived harm and perceived addictiveness and usage and intent. Additional research is needed using a diverse group of college students to determine the extent to which waterpipe smoking is becoming more common.

Implications for Practice: Educational interventions are needed to provide information to students regarding the dangers associated with tobacco use with waterpipes.

Keywords

Waterpipe, smoking, college athlete

Prevalence of Waterpipe Tobacco Smoking
Among University Student Athletes in the United States

The purpose of this study was to determine the prevalence of waterpipe tobacco smoking among university athletes. A waterpipe, also known as a hookah, is an oriental tobacco delivery system with a long, flexible tube that draws smoke through water from contents contained in a bowl (Oxford, 2011). The hookah device was invented by a physician in India 400 years ago as a “safer” way of smoking tobacco (World Health Organization [WHO], 2005).

More than half of the people who smoke tobacco are expected to die prematurely. Tobacco use is responsible for more than 430,000 deaths in the United States and almost 5 million worldwide annually (American Lung Association [ALA], 2007). It is well documented that long-term tobacco use can cause cardiovascular disease, lung cancer, bladder cancer, and chronic lung disease. Over 90% of lung cancer in men, 70% of lung cancer among women, and 22% of all cardiovascular diseases are caused by tobacco use (WHO, 2009). Prevention or early cessation of tobacco use can have dramatic effects on health-related outcomes. Through education and cessation programs, morbidity and mortality related to tobacco use could be substantially reduced or eradicated.

Although limited research has been conducted on the prevalence of waterpipe usage, some reports exist with data on this relatively “new method” of tobacco usage in the United States. Little is known about the prevalence of waterpipe use among university athletes. University athletes are perceived to be less likely to engage in unhealthy behaviors, such as cigarette smoking. However, a study by Primack, Fertman, Rice, Adachi-Mejia & Fine (2010) suggested this population is at risk to engage in waterpipe smoking. The present study aims to

confirm the findings of this study and to close the gap in the research focusing on the prevalence of waterpipe use among university athletes.

In a descriptive, cross-sectional design, Primack et al. (2008) studied the prevalence of, and associations with, Waterpipe tobacco smoking among 647 randomly sampled students at the University of Pittsburgh. Data for this study were collected via the web-based version of the American College Health Association's (ACHA) National College Health Assessment (NCHA). Primack et al. found that 41.1% of the sample agreed or strongly agreed that they intended to smoke tobacco from a waterpipe in the future. In general, waterpipe users believed that it was neither as harmful nor as addictive as cigarettes (Primack et al., 2008). Perceived peer acceptability and perceived popularity of waterpipe smoking also were strong predictors of use.

In the United States, it was reported that 11% of high school students had used a water pipe at least once (Barnett, Curbow, Weitz, Johnson, Smith-Simone, 2009). A previous study showed that women preferred hookah to cigarette use, also noting a positive social aspect (Maziak, Ward, Afifi Sowaeid, & Eissenberg, 2004). A sample of 587 university students was questioned about the adverse effects of hookah use. Only 25% of the students were aware of the negative health outcomes that came with its use (Asafar, Ward, Eissenberg, & Maxiak, 2005). Smith (2006) found 15.3% of 411 U.S. college freshmen used a waterpipe within the last 30 days. Hookah use was found in the middle and high school student population (Barnett et al, 2009) and among college athletes (Primack, Fertman, Ricke, Adachi-Mejia, & Fine, 2010), a population considered low-risk for tobacco use. Jordan and Delnevo (2010) found 9.7% of New Jersey high school students were hookah users. Flavored, sweetened tobacco is implicated in the increased use of the water pipe (Rastam, Ward, Eissenberg, & Maziak, 2004). Further research is needed to gain additional knowledge regarding epidemiology of waterpipe-associated disease

risks, influence of cultural and social practices on initiation and maintenance, and development of prevention and cessation strategies.

As in the Primack et al. study (2008), the conceptual framework used in this study is the Theory of Reasoned Action. This theory is used to assess beliefs related to health expectancies and social norms. Health expectancies and social norms are precursors of behavioral intention. In the Theory of Reasoned Action, three concepts (attitude, social norm, and intention) lead to the action or behavior. First, there must be an idea about a certain subject (attitude), then there should be some social exhibition either for or against the idea (social norm), and finally there should be a will for the idea to become a reality (intention). Once there is a will behind the idea, the person typically acts on the will (behavior).

Attitude is how one feels about a particular subject. Social norms, on the other hand, are a set of acceptable behaviors that are perceived by each individual and enforced by peers. Attitude or social norms alone do not predispose an individual to a particular behavior. While attitude and social norms have a great influence, intention is the basis of a behavior. Presuming there are no barriers to achieve a behavior or the perceived benefits grossly outweigh the perceived risk, intention leads to behavior. The items within the survey (Appendix A) were intended to measure intention, attitudes, and behavior of athletes with regard to waterpipe smoking.

The aim of this study was to answer the following research question: "What is the prevalence and beliefs about waterpipe tobacco usage among college athletes?" The project's design is a replication study of Primack and colleagues' (2008) study, "Prevalence of and associations with waterpipe tobacco smoking among U.S. university students." The study explored the prevalence of waterpipe smoking among U.S. university athletes.

Methods

The researcher conducted a cross-sectional, email survey of college athletes at a Midwestern university. This study used a convenience sample of 59 students who were English-speaking and 18 years or older. These students were enrolled in the Winter 2013 semester athletic program.

Measure

The survey was based on the American College Health Association's National College Health Assessment with additional items related to waterpipe use. The following demographic measures were assessed: age, gender, race, residence, and self-reported grade point average.

Procedures

The survey was sent to the assistant director of the athletics department at a Midwestern university. An email with a link to the survey was sent from the athletics department to all athletes at the university. Upon clicking on the link, the participant was sent to the Survey Monkey website to complete the survey. The first and second pages of the survey were the IRB approved informed consent form. The participant was required to sign the consent to advance to the survey questionnaire. The athletes were asked to complete the survey within 30 days of receiving the email. The email stated that participation is voluntary. Weekly reminder emails were sent to the participants during the 30-day period. This survey was approved by Oakland University IRB.

Data Analysis

Statistical analyses of the data from the surveys were performed using IBM's SPSS 19 statistical analysis software. Descriptive statistics and Pearson's product moment correlations (r)

analyses were performed. All decisions on the statistical significance of the findings were made using a criterion alpha level of .05.

Results

Of the 351 students to whom offers of participation were sent, 59 (16.8%) completed the questionnaire. The average age of the respondents were 19.98 years with 64.1% being female. Only 6.8% self-reported as non-White. A majority of the respondents (83.1%) reported living on campus. One respondent (1.7%) reported being a member of a fraternity/sorority. All but 1 (1.7%) student reported grades as either As ($n = 32$, 54.2%) or Bs ($n = 26$, 44.1%).

Of the 59 participants in the sample, 19 (32.2%) reported ever smoking tobacco from a waterpipe, 13 (22.0%) reported past year smoking, and 3 (5.1%) reported smoking within 30 days. A quarter of the participants ($n = 15$, 25.4%) believed it was very socially acceptable to smoke tobacco from a waterpipe while 40 (67.8%) believed it was somewhat to moderately acceptable. More than half of the sample ($n = 31$, 52.5%) believed smoking tobacco from a waterpipe was less addictive than smoking regular cigarettes. More than one third ($n = 20$, 33.9%) of the participants believed waterpipe smoking was less harmful than regular cigarette smoking and 6 (10.2%) intended to smoke at least once within the next 12 months (See Table 1). In a multivariate model (Table 2), strong statistically significant correlations in a positive direction were found between perceived harm and perceived addictiveness ($r = .42$, $p < 0.01$), intent and usage within the last month ($r = .68$, $p < 0.01$) and the last year ($r = .63$, $p < 0.01$) and ever ($r = .49$, $p < 0.01$). A statistically significant correlation was obtained between the usage in the last year and the extent to which students felt that using a waterpipe was socially acceptable ($r = -.27$, $p = 0.04$). Higher scores were associated with greater social acceptance of smoking tobacco with a waterpipe and usage was scored as a 1.

Discussion

The results of this study were comparable to those found the Primack and colleagues (2008) study. In Primack et al. study, 33.1% of the sample reported less perceived harm with waterpipe use compared to 33.9% in the present study. Fifty-two percent of the sample in Primack's study reported less perceived addictiveness compared to 52.5% in this study. This consistency is of interest due to the differences in populations between the two studies; university athlete population compared to the general student body. Possible future research could examine if being an athlete has any significant influence on whether one engages in detrimental health behaviors, such as waterpipe tobacco smoking.

Consistent with previous studies, a sizable portion of the participants believed that waterpipe use was neither as addictive nor harmful as cigarette use. In this sample, a strong positive correlation with perceived addictiveness and perceived harm was found. This outcome could explain some of the allure to waterpipe tobacco smoking. Compared to the general university population of the 2008 Primack et al. study that found 9.1% tobacco use in the past 30 days, the present study found 30-day tobacco use to be approximately 5%. The largest disparity in the results between both studies was the reported lifetime and past year waterpipe tobacco usage. The Primack et al. sample reported 40.5% lifetime waterpipe usage, 8.3% less than the sample of the present study. The Primack et al. sample reported 30.6% past year waterpipe usage compared to 22.0% for present study.

The correlations between intent to smoke with a waterpipe and usage during the past 30 days, year, and ever provided evidence that the student athletes were going to continue using waterpipes. This continued usage could be a reflection of their mistaken perception that smoking

tobacco with a waterpipe was less addictive than smoking cigarettes. Students may need to be apprised of the dangers associated with waterpipes and tobacco.

The relationship between perceptions that smoking tobacco with a waterpipe was socially acceptable and having used a waterpipe in the last year was statistically significant. The use of a waterpipe is becoming increasingly accepted by college students as evidenced by the number of hookah bars around college campuses.

Limitations

Limitations of this study included the following: limited scope of study and variation, a small sample size, and a “captive” population. The study focused on the student athlete population of one university, which is considerably smaller than the general student population of said university (19,740). Surveys were sent to 1.7% of the total population of the university. Of the 351 student athletes who were enrolled at the time of data collection, 59 (16.8%) responded. The population under study was captive due to the manner in which the surveys were distributed. To protect participants’ anonymity, only the athletic director had direct contact (via listserv email) with them. Because of the athletic director’s position, some athletes may have feared negative consequences from reported tobacco use, although the participant was assured that all responses would be anonymous. Furthermore, this survey was distributed and data were collected during the 2013 summer session.

Summary

Implications for Advanced Nursing Practice

This study has implications for future research and clinical practice. The findings from this study could be used as a basis for developing a tool to screen for risk and/or prevalence of the use of waterpipe tobacco smoking. Results of this study will be disseminated to advanced

practice nurses to increase their awareness of this emerging problem among college athletes. The evidence in this study can provide a rationale to assess all college-age patients, regardless of physical fitness, for waterpipe tobacco use.

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