

Intention to Smoke Tobacco Using a Waterpipe Among Students in a Southeastern U.S. College

Devon Noonan, Pamela Kulbok, and Guofen Yan

ABSTRACT *Objective:* Guided by the Theory of Reasoned Action, this study examined the association of behavioral beliefs, attitudes, normative beliefs, and subjective norms with waterpipe tobacco smoking intention in college students. *Design and Sample:* A cross-sectional design was used. A Web-based survey was sent to a random sample of 1,000 undergraduate students from a public institution in the southeast to recruit participants. *Measures:* The Theory of Reasoned Action Waterpipe Questionnaire, a modified version of the Fishbein-Ajzen-Hanson Questionnaire, was used to capture modal constructs of the Theory of Reasoned Action related to waterpipe use. Cronbach's α coefficients for the scales of the Theory of Reasoned Action Waterpipe Questionnaire ranged from .76 to .95. *Results:* Of the sample ($n = 223$), 13.5% currently smoked a waterpipe and 61% had ever done so. Using multiple regression, attitudes, behavioral beliefs, and subjective norms were associated with intention to smoke a waterpipe in the next 3 months and collectively explained 35% of the variance in intention. The full model, which included all the constructs of the Theory of Reasoned Action, demographic variables, and tobacco use variables, explained 83% of the variance in intention to smoke a waterpipe in the next 3 months. *Conclusions:* This study provides valuable information that may be used to target students at risk for waterpipe smoking and serves as a starting point in developing theoretically driven interventions to prevent waterpipe smoking.

Key words: health promotion, health risk behaviors, tobacco, waterpipe.

Tobacco use is the leading preventable cause of death in the United States and is responsible for an estimated 443,000 deaths, or 1 out of 5 deaths annually

(Centers for Disease Control and Prevention [CDC], 2008). There are many forms of tobacco use, all of which contain nicotine and are highly addictive. Waterpipe smoking has gained attention as a new trend in tobacco use among U.S. college students and young adults, and the American Lung Association (ALA) has labeled it the first new tobacco trend of the 21st century (2007). In addition, the worldwide increase in smoking tobacco using a waterpipe among young people during the past decade may represent the second global tobacco use epidemic since cigarettes (Maziak, 2010). The purpose of this study, guided by the Theory of Reasoned Action (Fishbein & Ajzen, 1975), was to examine predictors of waterpipe tobacco smoking intention in U.S. college students. Theory and evidence-based knowledge related to waterpipe smoking attitudes, beliefs, and behavior may be a useful starting point for developing and testing future preventive interventions.

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Background

Waterpipe smoking is generally defined as a tobacco use method in which smoke passes through water before it is inhaled (Maziak, Ward, Afifi, Soweid, & Eissenberg, 2004). A typical waterpipe contains five parts: a bowl, head, base, hose, and mouthpiece. The tobacco used to smoke a waterpipe does not burn in a self-sustaining manner; hence, charcoal is placed in the bowl on top of the tobacco, although the coal is usually separated from the tobacco by a piece of perforated aluminum foil (World Health Organization [WHO], 2005). Many people believe that waterpipe smoking is a safe alternative to the use of conventional tobacco products. However, in a recent study by Eissenberg and Shihadeh (2009) comparing waterpipe smoke toxicant exposure to cigarette smoke toxicant exposure, waterpipe smoke was found to contain comparable peak nicotine levels and three times greater peak carboxyhemoglobin (COHb) levels (a measure of carbon monoxide exposure). Furthermore, because of the long duration of most waterpipe sessions (45 min or more) waterpipe smoking results in much greater nicotine exposure, 1.7 times that of smoking a cigarette. Waterpipe smoke contains high levels of other toxic compounds, including heavy metals and cancer-causing chemicals, and therefore may be associated with multiple health risks, including nicotine addiction, cancer of the lungs, and heart disease (Eissenberg & Shihadeh, 2009; Jabbour, El-Roueiheb, & Sibai, 2003; Sepetdjian, Shihadeh, & Saliba, 2008; Shihadeh & Saleh, 2005). Recent research highlighted the danger of secondhand waterpipe smoke, and yet waterpipe smoking is able to circumvent most smoke-free indoor air laws (Daher et al., 2010; Maziak, Ibrahim, Rastam, Ward, & Eissenberg, 2008; Noonan, 2010a).

Current research has highlighted growing waterpipe use on college campuses. In a cross-sectional study of U.S. college students, Grekin and Ayna (2008) reported “current” waterpipe use, defined as having smoked a waterpipe in the last 30 days, to be approximately 15% ($n = 602$). Other studies support the 15–20% estimate of waterpipe use among college students and young adults in the United States (Eissenberg, Ward, Smith-Simone, & Maziak, 2008; Smith-Simone, Maziak, Ward, & Eissenberg, 2008; Ward et al., 2008). Waterpipe smoking in college student populations has been strongly linked to cigarette use (Dugas, Tremblay, Low, Cournoyer, & O’Loughlin,

2010; Primack et al., 2008; Smith-Simone et al., 2008). Smith-Simone et al. (2008) found that 54% of students who used waterpipe currently also currently smoked cigarettes. Similarly, Dugas et al. (2010) found that young adults who had used a waterpipe in the past year were more likely to have smoked cigarettes in the past year. Jensen, Cortes, Engholm, Kremers, and Gislum (2010) reported that waterpipe smoking among male adolescents was predictive of cigarette smoking. Furthermore, students who previously experimented with waterpipe smoking are also more likely to have intentions to smoke a waterpipe in the future (Primack et al., 2008).

Waterpipe smoking has been associated with demographic variables, including age, gender, and race. In a study of 744 U.S. college students, Eissenberg et al. (2008) reported past-year waterpipe smoking to be associated with being male, being younger (18–19 vs. 20–23), and being Caucasian American. Dugas et al. (2010) found similar results, with younger age and male gender also predicting waterpipe smoking. Researchers have also examined, although to a lesser degree, the psychosocial factors associated with waterpipe smoking in college populations. Smith-Simone et al. (2008) assessed attitudes toward waterpipe smoking in a convenience sample of 201 users and reported common positive attitudes to include pleasant taste, pleasant smell, relaxing effects, and the opportunity to socialize with friends. Similarly, Primack et al. (2008) examined the attitudes, norms, and intentions toward waterpipe smoking among 647 undergraduate and graduate college students and found that one third of the sample considered waterpipe smoking socially acceptable and over half viewed waterpipe smoking as less dangerous than cigarette smoking. Approximately 87% of waterpipe users and 20% of nonusers had intentions to smoke a waterpipe in the future. Notably, very few of these studies used a theoretical framework to examine the psychosocial factors associated with waterpipe use in college students, although this information is necessary to design effective interventions for this population.

The Theory of Reasoned Action (Fishbein & Ajzen, 1975) was used to guide this study and has been successfully used in predicting smoking intentions in past tobacco use studies (Hanson, 1997, 2006; Primack et al., 2008). According to the Theory of Reasoned Action, human action is determined by behavioral intention. Attitudes and subjective norms

related to a behavior determine behavioral intention (Fishbein & Ajzen, 1975). Behavioral beliefs and normative beliefs surrounding a behavior determine attitudes and subjective norms, respectively. Behavioral beliefs and the outcome evaluation of these beliefs produce a favorable or an unfavorable attitude toward a particular behavior and in turn determine attitudes surrounding a behavior. Normative beliefs and the motivation to comply with those beliefs produce perceived subjective norms and in turn determine subjective norms surrounding a behavior. Behavioral and normative beliefs are often referred to as indirect measures, therefore indirectly affecting behavioral intentions.

The purpose of this study was to determine whether the constructs of the Theory of Reasoned Action (behavioral beliefs, attitudes, normative beliefs, and subjective norms) were associated with waterpipe smoking intention in the next 3 months. For this study, each of the aforementioned constructs of the Theory of Reasoned Action was individually examined for their association with waterpipe smoking intention. The study also examined the relationship of waterpipe smoking intention with demographics and tobacco use. The interaction of gender and school year with the four constructs of the Theory of Reasoned Action was also explored to identify target groups for prevention efforts.

Methods

Design and sample

This study used a cross-sectional design. Participants were recruited from a public institution in a southeastern state with approximately 13,000 undergraduate students: 55% female 45% male, 64% Caucasian American, 11% Asian American, 8% African American, 4% Hispanic, 0.2% Native American, and 12% other/unclassified (Office of Institutional Assessment, 2006). The Institutional Review Board at the university approved the study. This study was conducted in the Spring Semester of 2009. The Office of Student Services provided a computer-generated simple random sample of 1,000 undergraduate students as a pool from which to recruit participants.

To improve response rates, the random sample of 1,000 undergraduates received a prenotice e-mail informing them that they would receive an e-mail invitation in the next few days to participate in a survey about waterpipe smoking (Dillman, 2007).

Three days later, the sample received an e-mail inviting them to participate in the waterpipe survey via a link provided. It was made clear in the invitation that only tobacco waterpipe smoking was of interest. SurveyGizmo, an online-computerized survey software, was used to recruit participants and manage the survey. By agreeing to participate in the study based on the narrative provided, students gave implicit consent for participation. Participants received privacy information for SurveyGizmo.com with the consent information. The survey was open for 2 weeks, with reminders sent every 3 days to encourage participation. In an effort to encourage participation, respondents who completed the survey were eligible to enter a lottery drawing of a gift certificate for US\$250 to a well-known bookstore.

Measures

A 45-item online survey was used to gather information on demographic variables, tobacco use behavior, and variables measuring the four constructs of the Theory of Reasoned Action. Demographic information included age, gender, racial and/or ethnic identity, and year in school. Current (“During the past 30 days have you tried smoking tobacco in a waterpipe even one or two puffs?” and “In the past 30 days how many days did you smoke tobacco using a waterpipe”) and ever waterpipe smoking (“Have you ever tried smoking tobacco in a waterpipe, even one or two puffs?”) were collected. “Smoking tobacco” in these items was highlighted in bold to avoid confusion with other substances. Current and ever cigarette data were also collected. The cigarette use items were from the 2007 Youth Risk Behavior Survey (CDC, 2007). The waterpipe measures were from Smith’s College Freshman Nicotine Study (Smith, 2006).

A 37-item investigator-developed Theory of Reasoned Action Waterpipe Questionnaire assessed the psychosocial factors related to waterpipe smoking intention in college students. The questionnaire was a modified version of the Fishbein-Ajzen-Hanson Questionnaire (FAHQ) (Hanson, 1997). The original FAHQ is a 50-item questionnaire based on the Theory of Reasoned Action/Theory of Planned Behavior (TPB). This questionnaire included scales to measure the psychological determinants of cigarette smoking. Seven direct measures, including intention, attitude, and subjective norm, were adapted from the FAHQ, with waterpipe use substituted for cigarette use. All direct measures were assessed using 7-point semantic

differential evaluative scales. Intentions were captured by three items, “I intend to smoke tobacco using a waterpipe 3 months from now . . .” (true/false, likely/unlikely, and probably/probably not). Attitudes were captured by three items, “For me to smoke tobacco using a waterpipe in the next 3 months would be . . .” (pleasant/not-pleasant, nice/awful, and fun/not-fun). Subjective norm was captured by one item “If I smoke tobacco using a waterpipe most people that are important to me would . . .” (approve/disapprove).

The indirect measures of the FAHQ assessed beliefs and referents salient to cigarette smoking and were not useful for this study. Therefore, a pilot study was conducted to gather necessary information to create belief-based, indirect measures of attitudes and subjective norms related to waterpipe use among college students. The pilot study used free response questions suggested by Ajzen (2002) to obtain salient beliefs and referents of waterpipe smoking in 58 college students. Content analysis was performed and salient behavioral beliefs that emerged from the analysis included “waterpipe smoking is . . . safer than regular cigarettes, causes lung cancer, may harm my health, is less irritating than cigarette smoke, gives me a good buzz, costs a lot of money, allows me to have a good time with friends, is relaxing, tastes good, and smells good.” These beliefs were used to create the behavioral belief and outcome evaluation scales in relation to waterpipe use. A total of 20 seven-point semantic differential scales were used; 10 for modal belief items ranging from “likely to unlikely” and 10 outcome evaluation items ranging from “desirable to undesirable” were captured. Referents that emerged (family, friends, significant others, parents, and siblings) were used to create the normative belief and motivation to comply scales in relation to waterpipe use. A total of 10 seven-point semantic differential scales were used; 5 perceptions of referents items ranging from “approve to disapprove” and 5 motivation to comply items ranging from “agree to disagree” were captured. These indirect measures of attitude and subjective norms were modeled after the belief-based measures of the FAHQ. The scoring of the Theory of Reasoned Action Waterpipe Questionnaire, followed by that of the FAHQ (Hanson, 1997, 2006).

To test the feasibility of the questionnaire and the reliability of the scales, a second pilot study was conducted with a convenience sample of 100 undergraduate college students to examine internal consistency

using Cronbach’s α reliability coefficients. Cronbach’s α for the entire 37-item Theory of Reasoned Action Waterpipe Questionnaire was .86. Cronbach’s α coefficients for the scales of the Theory of Reasoned Action Waterpipe Questionnaire ranged from .76 to .95. The intention scale had the highest reliability (.95), followed by attitude (.94), behavioral beliefs (.76), and normative beliefs (.76), respectively.

Analytic strategy

Multiple linear regression was used to examine the relationship between intention to smoke waterpipe in the next 3 months and the independent variables of behavioral beliefs, attitude, normative beliefs, and subjective norms. The relationships of age, gender, year in school, race, and current waterpipe and cigarette use with intention to smoke waterpipe were also examined based on associations reported in the current literature (Dugas et al., 2010; Eissenberg et al., 2008; Smith-Simone et al., 2008; Ward et al., 2008). First, the regression model examined the relationship between intention to smoke and each of the four individual constructs (behavioral beliefs, attitude, normative beliefs, and subjective norms controlling for age, gender, year in school, race, current cigarette use, and current waterpipe use). Second, the regression model was used to examine the joint relationship between intention to smoke a waterpipe and the four Theory of Reasoned Action constructs (entered simultaneously into the model), controlling for age, gender, year in school, race, current cigarette use, and current waterpipe use. The regression models that included the interaction terms of gender and each individual construct of the Theory of Reasoned Action as well as the interaction terms of school year and each individual construct of the Theory of Reasoned Action were then examined. Model assumptions were checked, including normality, linearity, multicollinearity, and homoskedasticity, with no major violations noted. Statistically significant results were interpreted at a p value of .05.

Results

Of the 1,000 e-mails sent representing the target population, only seven were undeliverable. Of the 993 college students from the target population who received the survey invitation, 261 (26%) completed the survey. Of the 261 students who completed the survey, two cases had a calculated Mahalanobis

distance above the critical threshold, indicating that they contained multivariate outliers and were deleted to reduce the chances of error (Meyers, Gamst, & Guarino, 2006). Another 36 participants were eliminated from the analysis because of incomplete questionnaires, resulting in a final sample of 223 participants. Two-sample *t* tests and chi-square tests were used to compare the demographic and tobacco use variables of the 36 cases that were eliminated and the 223 cases that were included in the study. The results of this analysis revealed no significant differences between nonrespondents and the final study sample.

Demographics and tobacco use behavior

The mean age (*SD*) of the sample was 19.9 years (1.3); more females (54%) than males completed the survey. The majority were Caucasian American. This is consistent with the demographic characteristics of the university students sampled. Sixty-one percent reported ever waterpipe use and 13.5% reported current waterpipe use. Fifty percent of the sample reported ever cigarette use and 18% reported current cigarette use (see Table 1).

Correlates of waterpipe smoking intention

Each construct of the Theory of Reasoned Action was found to be significantly associated with intention to

smoke waterpipe in the next 3 months, after adjusting for demographic variables and tobacco behaviors (attitude: $B = .250$, $p = <.001$; behavioral beliefs: $B = .037$, $p = <.001$; subjective norm: $B = .657$, $p = <.001$; and normative beliefs: $B = .031$, $p = <.001$). The amount of variance explained for each construct ranged from 22% to 75%, with attitude accounting for the most variance (75%), followed by behavioral beliefs (43%), normative beliefs (34%), and subjective norms (21%). As expected, the relationships were positive; that is, smoking intention increased as favorable attitudes, perceived subjective norms, and behavioral beliefs about waterpipe smoking increased.

When all four constructs of the Theory Reasoned Action, demographics (age, gender, race, year in school), and tobacco use (current waterpipe and current cigarette use) were simultaneously examined for their joint relationship with waterpipe smoking intention, these variables collectively accounted for 83% of the variance in intention. Attitude, behavioral beliefs, and subjective norm were all significantly associated with intention and explained 35% of the variance in waterpipe smoking intention. Table 2 presents the regression coefficients, significance levels, and R^2 for all of the variables entered into the model. Current cigarette use, current waterpipe use, and school year were also significantly associated with intention, with second- and third-year students having stronger intentions to smoke waterpipe in the next 3 months than fourth-year students.

The interactions of gender and school year with the Theory of Reasoned Action constructs were not significant, indicating that the effects of attitudes, norms, behavioral beliefs, and normative beliefs on intention did not differ by gender or year in school.

Discussion

This is one of the first theoretically driven studies to examine waterpipe smoking intentions among college students. Furthermore, in the available literature examining smoking tobacco using a waterpipe, very few studies use measures based on the Theory of Reasoned Action to guide their analysis. Theoretically driven studies are necessary to design interventions and tailor health education messages geared toward waterpipe tobacco use (Kasprzyk, Montano, & Fishbein, 1998). In this study, when individually examined, each of the Theory of Reasoned Action constructs was significantly associated with waterpipe

TABLE 1. *Demographics and Tobacco Use Behavior in the Study Sample (n = 223)*

| Characteristics | Value |
|----------------------------------|-------------|
| Age: <i>M (SD)</i> | 19.85 (1.3) |
| Male (#, %) | 102 (45.7) |
| Race (#, %) | |
| Asian | 29 (13) |
| Black | 7 (3.1) |
| Caucasian | 160 (71.7) |
| Hispanic | 8 (3.6) |
| Other | 19 (8.5) |
| Year in school (#, %) | |
| First year | 67 (30) |
| Second year | 58 (26) |
| Third year | 40 (17.9) |
| Fourth year | 58 (26) |
| Ever waterpipe smoking (#, %) | |
| Yes | 136 (61) |
| Current waterpipe smoking (#, %) | |
| Yes | 30 (13.5) |
| Ever cigarette use (#, %) | |
| Yes | 111 (49.8) |
| Current cigarette use (#, %) | |
| Yes | 42 (18.8) |

TABLE 2. Relationship of Intention to Smoke Waterpipe with Predictors ($n = 223$)

| Construct/variable | Regression coefficient | Standard error | p value | R^2 |
|-------------------------------|------------------------|----------------|-----------|-------|
| Attitude | 0.226 | .017 | <.001* | .334 |
| Subjective norm | 0.154 | .076 | .045* | .009 |
| Behavioral beliefs | 0.013 | .004 | <.001* | .001 |
| Normative beliefs | -0.007 | .004 | .099 | .002 |
| Age | 0.026 | .093 | .780 | .002 |
| Gender | -0.084 | .112 | .493 | .116 |
| School year: first year | 0.441 | .329 | .182 | |
| School year: second year | 0.538 | .246 | .030* | .048 |
| School year: third year | 0.488 | .203 | .017* | |
| (Fourth year reference group) | | | | |
| Race: Asian | 0.152 | .174 | .386 | |
| Race: Black and Hispanic | 0.005 | .233 | .982 | .022 |
| Race: Other | 0.236 | .207 | .205 | |
| (Caucasian reference group) | | | | |
| Current cigarette use | 0.613 | .162 | <.001* | |
| (yes vs. no) | | | | .295 |
| Current waterpipe use | 1.194 | .185 | <.001* | |
| (yes vs. no) | | | | |

Note. Cumulative R^2 of Theory of Reasoned Action constructs only = 34.6%. Cumulative R^2 of the entire model = 82.9%.

*Significant values.

smoking intention, while controlling for demographic and tobacco use variables. Attitudes toward waterpipe smoking explained the most variance (75%) in intention to smoke tobacco using a waterpipe in the next 3 months. In the full model, the Theory of Reasoned Action constructs of attitude, behavioral beliefs, and subjective norms remained significantly associated with intention to smoke in this study. In the full model, attitudes toward waterpipe smoking accounted for the most variance (33%) in intention to smoke at 3 months. This finding suggests that future research developing and testing prevention messages that focus on decreasing favorable attitudes toward waterpipe smoking is warranted. These findings are similar to those reported in other studies conducted in the United States, where positive attitudes toward smoking were associated with use in the college population (Primack et al., 2008; Smith-Simone et al., 2008). However, the majority of these studies were not theoretically based. Therefore, this study serves as a strong foundation for future theory-based studies examining attitudes toward waterpipe smoking and their effect on intentions and behavior.

Although behavior beliefs and subjective norms were significant, they accounted for very little vari-

ance in intention to smoke tobacco using a waterpipe in the full model. It is noteworthy that subjective norms did not account for a large proportion of variance in the model. Many other U.S.-based studies have reported subjective norms (perceived social acceptability of waterpipe smoking) as a strong indicator of waterpipe use in this population (Eissenberg et al., 2008; Primack et al., 2008; Smith-Simone et al., 2008). This relationship should be reexamined in future studies with larger, more diverse samples.

The demographic variables of age, gender, and race have been shown to be associated with waterpipe smoking in the literature (Dugas et al., 2010; Eissenberg et al., 2008; Smith-Simone et al., 2008; Ward et al., 2008), although they were not associated with waterpipe smoking intention after adjusting for the Theory of Reasoned Action constructs. The demographic variables (age, gender, and race) were individually examined for their association with intention and only sex was found to be a significant predictor; male sex was associated with stronger intentions to smoke. Furthermore, the interactions of the constructs of the Theory of Reasoned Action with gender and school year were not significant, suggesting that broad, campus-wide antismoking messages that target attitudes, subjective norms, and behavioral beliefs surrounding waterpipe use may be beneficial to all students, regardless of gender or year in school. This interpretation of the results needs to be tested in larger, more diverse populations.

This study highlights the problem of waterpipe smoking among college students and young adults. In this study, current waterpipe use (defined as use in the last 30 days) was 13.5%. This is similar to the current rates reported by Smith (2006) and by Grekin and Ayna (2008), and is consistent with the data from two previous pilot studies examining waterpipe smoking in a similar university setting (Noonan, 2010b). Sixty-one percent of this sample had ever smoked a waterpipe. This percentage was higher than seen in similar studies, which reported ever waterpipe use between 40% and 50% (Eissenberg, Ward, Smith-Simone, & Maziak, 2008; Primack et al., 2008). This finding may reflect the increasing popularity of waterpipe use over the past 2 years, and is a cause for concern. Moreover, more students had ever smoked a waterpipe (61%) than had ever smoked cigarettes (49.8%), suggesting that waterpipe smoking may be more appealing to tobacco-naïve persons. However, because current cigarette and waterpipe

use were strongly associated with smoking intentions, explaining 29% of the variance in intention to smoke in the next 3 months, those experienced with other forms of tobacco use, that is, smoking cigarettes, should also be targeted for waterpipe prevention interventions. This supports similar studies where traditional forms of tobacco use were also a stronger predictor of waterpipe smoking (Dugas et al., 2010; Smith-Simone et al., 2008). Further investigations examining the relationship between waterpipe smoking intentions and multiple different tobacco use methods are necessary to appropriately target those at risk for smoking waterpipe in the future.

Implications for research

While this study provides important information about the factors predicting waterpipe smoking intention in college students, there were some notable limitations. The response rate was low (26%), although this is common in college student populations and for e-mail surveys. Response rates for college students average between 17% and 70% (Porter & Umbach, 2006). However, the exclusion of subjects who did not respond could introduce bias. In addition, the sample was from a single university in the southeast and the majority of students (71%) were Caucasian American. Although the racial distribution in the study was similar to that of the university, future studies should focus on minority recruitment by oversampling to diversify the study population. In addition, future studies may include a more geographically diverse samples obtained from multiple colleges and universities. It should also be noted, since this was a cross-sectional observational study, that causality cannot be established between the independent and the dependent variables. Therefore, the results of this study should be interpreted with caution. Future theory-based research of this nature should use a longitudinal approach. Finally, the measures used for this study are new and although they were developed from preliminary work in accordance with Ajzen's (2002) recommendations, they may not fully capture the theoretical constructs. Further testing and refinement of the Theory of Reasoned Action Waterpipe Questionnaire is recommended.

Implications for practice

Health care practitioners often play a large role in designing college campus prevention strategies and can use the results of this study to inform current tobacco

and waterpipe prevention messages for students in similar university settings. Notably, the results of this study, coupled with the available current literature, indicate that waterpipe smoking and use of other tobacco products are present on many college campuses. Health care providers working with college students need to recognize this and accordingly screen patients. Individually, providers can capitalize on opportunities to promote the dangers of waterpipe smoking during patient visits and help to dispel myths about using a waterpipe to smoke tobacco, for example, the myth that smoking tobacco using a waterpipe is safer than using other tobacco products. Providers should highlight the unpleasant and serious aspects of waterpipe smoking, including nicotine addiction, various chronic health effects, and communicable diseases. Providers can suggest alternate, healthier ways to socialize with friends, which do not involve addictive substances (like substance-free campus-sponsored events) and refer patients for cessation services as necessary. Providers can also empower students to disapprove of their peer's waterpipe smoking to challenge campus norms surrounding the acceptability of waterpipe smoking, as well as teach students peer pressure resistance techniques. Finally, providers should advocate for smoke-free environments for all students by promoting a tobacco-free campus.

Waterpipe smoking has recently become a new trend among college students in the United States and is associated with multiple health problems, including addiction (ALA, 2007). Moreover, waterpipe smoking is recognized as a public health threat in the United States and worldwide, due in part to its growing popularity among young people (Cobb, Ward, Maziak, Shihadeh, & Eissenberg, 2010; Maziak, 2010). College students ages 18–24 represent a growing vulnerable cohort of individuals who are in need of targeted interventions, intensifying the need for new, theoretically driven prevention initiatives to prevent tobacco use in this population (Bonnie, Stratton & Wallace, 2007). Developing and testing theory- and evidence-based interventions and programs to prevent waterpipe smoking, which are lacking in the literature, are critical from a public health perspective to curtail this new potential pathway for nicotine addiction before it evolves further.

Acknowledgments

This work was funded by American Lung Association, Sigma Theta Tau International and National Institute

of Nursing Research 5T32NR007073-18. The authors thank Sharon Utz and Emily Drake for their critique of this research.

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