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## ORIGINAL ARTICLE

# Waterpipe smoking among health sciences university students: Knowledge, attitude and patterns of use

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## KEYWORDS

Waterpipe smoking;  
Tobacco;  
University students;  
Prevalence;  
Questionnaire study

**Abstract** *Introduction:* Although waterpipe smoking is common in Gulf counties, its prevalence in Saudi Arabia is uncertain. The purposes of this study were (a) to assess the prevalence of waterpipe smoking among healthcare university students in Saudi Arabia and (b) to determine their attitudes and practices of waterpipe smoking.

*Materials and methods:* A cross-sectional survey was conducted among university students of three different health sciences colleges, namely medical, dental, and pharmacy, of a public university, through random cluster sampling. The questionnaire was designed to ask specific questions related to smoking in general and to waterpipe smoking specifically. The study was approved by the institutional research & ethics committees.

*Results:* A total of 535 participants were included in the study. More than one-third of the participants that reported having ever smoked a waterpipe ( $n = 198$ , 37%), and the majority of these were current smokers (62.1%,  $n = 123$ ); dental students were the most common (45.5%,  $n = 90$ ). Curiosity and pleasure-seeking were the main factors associated with starting waterpipe smoking. About one-sixth (14.9%,  $n = 80$ ) of the participants failed to identify a single harmful effect, while a vast majority of participants considered waterpipe smoking to be less unhealthy than cigarette smoking.

*Conclusion:* Waterpipe smoking is very popular among Saudi university students, and knowledge among university students about the dangers of waterpipe smoking is alarmingly low.

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## 1. Introduction

Waterpipe smoking (WPS) is a common habit among people in Middle Eastern countries, with prevalence rates of 11–32% (Maziak et al., 2004; Tamim et al., 2003; Refaat,

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2004; Zoughaib et al., 2004). In recent years, there has been an alarming increase in the prevalence of WPS, particularly among youth (Chaaya et al., 2004; El-Roueiheb et al., 2008; Salameh et al., 2014; Waked et al., 2009). There is compelling evidence in the literature that the presence of toxicants in waterpipe smoke is similar to that of cigarette smoke, including carcinogenic polycyclic aromatic hydrocarbons (Sepetdjian et al., 2008), volatile aldehydes (Al Rashidi et al., 2008), carbon monoxide (Eissenberg and Shihadeh, 2009), and nicotine (Maziak et al., 2009; Neergaard et al., 2007; Shihadeh and Saleh, 2005).

Healthcare professionals play an important role in the fight against tobacco, since they are generally considered a reputable source of health information (Maziak et al., 1999). Several studies have demonstrated the positive influence healthcare professionals have on their patients in terms of tobacco use and assistance in smoking cessation efforts (Davis, 1993; Gilpin et al., 1993). However, this positive influence may be seriously hindered by healthcare professional's own tobacco-related practices. Moreover, tobacco use practices are generally developed early in life, and therefore it is quite interesting to assess its use among health-related students and also to know if their education has altered their motives and beliefs. The use of tobacco is highly prevalent among health-related students regardless of their better understanding of the relevant risks (Awan et al., 2015; Flaherty and Richman, 1993).

Although there have been some studies evaluating WPS among the general population, research related to its use among university students is still sparse. The aim of the present study was to evaluate the prevalence and knowledge of WPS among university students from health-related disciplines. It further assesses WPS practices and factors that influence its continued use.

## 2. Materials & methods

### 2.1. Study population and design

A cross-sectional survey was conducted among medical and dental students of King Saud University, through random cluster sampling. A self-administered, anonymous questionnaire was distributed to all male students during March

2015. The objectives of the study were explained to the students, and their participation was entirely voluntary. Approval of the study was obtained from institutional research and ethics committees.

### 2.2. Instrument and data collection

A two-page structured questionnaire in English was developed based on published literature and tailored to the local context. The questionnaire was peer-reviewed and pre-tested before administration. Questionnaires were distributed immediately after morning lectures to ensure maximum student participation. The students were required to complete the questionnaires on site and to return them immediately to the research team.

The questionnaire consisted of 18 items, with three sections: (i) knowledge, (ii) attitude, and (iii) practice. Knowledge-based questions focused on the ability of students to recognize the risks of WPS. Attitude-based questions focused primarily on the behavior and feelings of the students toward WPS, whereas practice-based questions assessed the use of waterpipes among the participants (Fig. 1).

### 2.3. Data analysis

Data were analyzed using SPSS (version 18.0; IBM Corporation, Armonk, NY, USA). Responses were coded numerically to facilitate data entry. WPS characteristics among the different groups of students were compared and the data were analyzed using the Pearson Chi-square ( $\chi^2$ ) test, with the level of significance set to  $p < 0.05$ .

## 3. Results

A total of 535 students with a mean age of 24.0 years (standard deviation [SD] 1.3 years) participated in the study. The response rate of participants was 92.9%. Almost equal numbers of students were from the dental ( $n = 224$ ) and medical ( $n = 212$ ) colleges, whereas only 19.5% ( $n = 99$ ) belonged to the pharmacy college (Table 1).

More than one-third of the participants reported having ever smoked a waterpipe ( $n = 198$ , 37%), and the majority of these were current smokers (62.1%,  $n = 123$ ); dental students were the most common group (45.5%,  $n = 90$ ). Regarding the frequency and duration of WPS, the majority of smokers reported smoking at least once a month

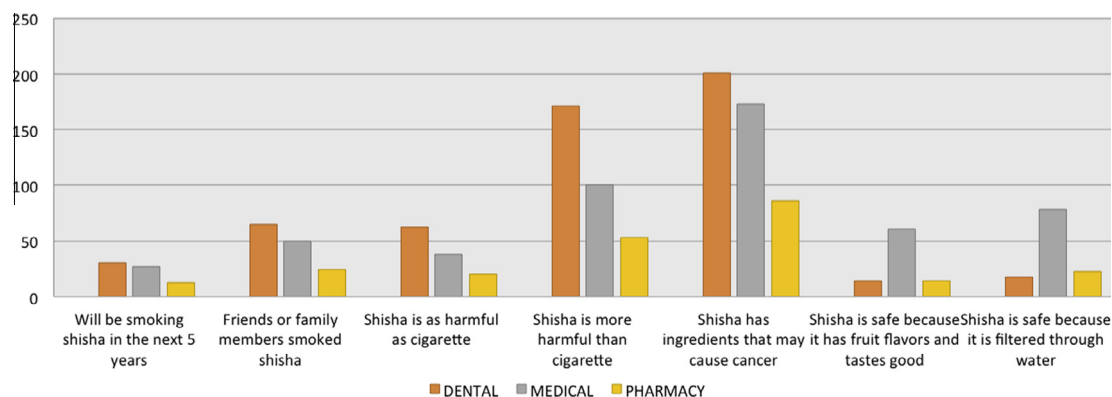


Figure 1 Knowledge of students toward waterpipe smoking.

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