



Smoking behavior among Saudi Arabian male college students in the U.S.: A case study

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ABSTRACT

Background: Saudi Arabia is ranked 23rd for tobacco consumption globally, and approximately, 25-43% of male college students in Saudi Arabia were smokers. This study uses a qualitative approach to explore the facilitators and barriers that influence the smoking behavior among Saudi international college students in the U.S. **Methods:** About 15 Saudi male international students who studied at a small liberal arts college were recruited and interviewed for about 30-50 min, following a semi-structured interview guideline. **Results:** The hookah was preferred by participants to the cigarettes because of its smell and the entertaining way of doing it. The major facilitators of the smoking behavior were socializing and leisure activity, academic stress, and reduced family influence. The protective factors included cost, accessibility, smoking policy, and influences from American culture. **Conclusion:** It is necessary to consider the Saudi students' social needs, the level of stress, and the influences of the American culture, when health professionals and colleges and universities examine smoking behavior among Saudi international students.

KEY WORDS: Higher education, hookah, international students, Saudi Arabia, water-pipe

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Received: June 21, 2016

Accepted: December 10, 2016

Published: February 05, 2017

INTRODUCTION

Due to a nationwide comprehensive anti-smoking campaigns and education programs, the smoking rate in the U.S. has been decreasing in recent decades. However, the smoking rates remain high in some subpopulation groups. A recent study showed that 22.6% of US college students were smokers [1], higher than the 16.8% in the general population [2]. The major reasons that college students smoke include stress, pleasure/addiction, social interaction, and weight loss [3,4]. Research also showed that tobacco use in college has also been associated with gender, fraternity/sorority membership, sports participation, peer influence, and ethnicity [5].

In recent years, the enrollment of international students in colleges and universities in the U.S. has increased rapidly [6]. The Kingdom of Saudi Arabia is the fourth largest sender of students to the U.S. for higher education [6]. In 2015, there were 59,945 students from Saudi Arabia studying in American colleges and universities [6]. While international students were embracing the education resources in the U.S., they were also found to be at higher risk of practicing unhealthy behaviors including smoking [7], poor diet [8], and physical inactivity [9].

Within the U.S. college student population, international college students from certain countries and regions have significantly higher smoking rates than domestic students. For example, it was reported that 43% of male international college students

from South Korea were smokers [7], while about 10-16.8% of American students smoked [10,11]. Although the smoking rate among Saudi international college students is unclear, previous studies indicated that Saudi Arabia is ranked 23rd for tobacco consumption globally [12], and approximately, 25-43% of male college students in Saudi Arabia were smokers [13,14].

In addition, water-pipe smoking has gained popularity as the cigarette smoking rate has decreased. A recent study showed that in 2014, 33% of college students said they had used a water-pipe in the last 12 months, up from 26% in 2013 [1]. Water-pipe usage was found to related to another drug usage including alcohol, cigarettes, and cigars [15]. Another study found that water-pipe use was related to male gender, Arab ethnicity, cigarette smoking, and belief in lower harm [16]. College students who perceived that the water-pipe was more socially acceptable than cigarettes were much more likely to use the water-pipe [17].

In the Middle East region, water-pipe smoking is also called "Shisha," "Maassel," "Hookha," or "Nargilha" and has gained in popularity in countries in the Arabian peninsula, Turkey, India, Pakistan, Bangladesh, and China [18]. It has been estimated that in Saudi Arabia, over 50% of college students who smoked used water-pipe smoking [13]. Although the World Health Organization estimates that one session of water-pipe use delivers as much as 100 times the smoke volume of a single cigarette, water-pipe users usually believed that it was less harmful compared to cigarette smoking [13,16].

Many factors are triggers of developing or continuing smoking behavior for international students. For example, being away from family and friends results in a lack of social support among international students. Different social, cultural, and religious backgrounds make it more challenging for international students to assimilate into American culture [19,20]. In addition, their academic stress may be increased because English is their second language. Saudi students may experience more difficulties as they adapt to the American culture, compared to other international students, due to their different religious practice and belief. Together, those factors may lead to higher smoking rate among Saudi male international students. To the author's knowledge, no study has examined smoking behavior among Saudi international college students in the U.S. Primack *et al.* [11] suggested that to better understand students' smoking behavior, more qualitative studies should be implemented. Using a qualitative approach, this study aims to explore factors that influence Saudi male students' smoking behavior, specifically the role of American culture and the college environment.

METHODS

Approaches

This study used an open-ended, qualitative approach in an attempt to gain an in-depth understanding of the facilitators of and protective factors related to smoking behavior among Saudi male international college students. In addition, feedback was sought from participants in terms of how colleges and universities could help them to quit smoking. A constructivist paradigm was followed, which maintains that individuals and groups generate meaning [21], in recognition that participants' smoking behaviors would be especially complicated, having been influenced by their past experiences, current environmental exposure, and other life-course dynamics.

The authors are fully aware of their own position in the study. The second author, who was responsible for conducting the interviews and reviewing the themes that the first author identified, is a female Saudi international student who had been studying in the United States for more than 4 years. Her cultural identity is Saudi Arabian, but she had come to understand the Western culture in terms of smoking behavior because it is her academic area of scholarly inquiry. The first author, who is a non-Saudi woman and an experienced researcher in the psychological, sociological, and cultural aspects of health behavior, carefully reviewed the interview guide, independently reviewed the transcripts and subsequent coding, and discussed emerging themes with the second author.

Context and Participants

All of the study participants were from a small (i.e. 2900 students), private, regional and primarily undergraduate comprehensive college located in the Northeast region of United States. There are approximately 200 international students from 17 countries enrolled in the college, including forty from Saudi

Arabia. 15 Saudi international male students were recruited to participate in the study through word-of-mouth. Following the 10th interview or so, most of the same ideas were being repeatedly expressed. Therefore, the researchers felt that theoretical saturation was accomplished by the time the 15th interview was completed. Eligibility criteria for study participation included: (a) Male Saudi international student, (b) studying in the U.S. for more than 1 year, (c) current or previous smoker (including water-pipe, cigarette, cigar, and smokeless tobacco).

Data Collection and Analysis

Before the interview, the participants were informed about the nature of the interview process and assured that their names would not be associated with the recording. Written consent was obtained from each participant before the interview. The second author led all the interviews which were held at a place on campus chosen by the interviewee (e.g. library, classroom, and student lounge). Participants chose to be interviewed in either Arabic or English. All interviews lasted between 30 and 50 min. Interviews were conducted one-on-one using a semi-structured format, and an interview guide was followed. All interview questions were designed to address the research purpose. That is, what motivates them to smoke? What are the facilitators of their smoking behavior? What barriers to smoking do they encounter? How does American culture influence their smoking behavior? All interviews were digitally recorded and transcribed verbatim. The major themes were then identified by the first author. All authors then discussed and classified the themes into categories of facilitators, protective factors, and attitudes toward quitting smoking. All participants received pseudonyms to protect their confidentiality.

RESULTS

The average age of the participants was 22 (standard deviation [SD] = 1.3). The average length of stay in the U.S. was 3.2 years (SD = 2.1). All of the 15 participants were current smokers, among whom 13.3% ($n = 2$) smoked the water-pipe only, 40% ($n = 6$) smoked cigarettes only, and 46.7% ($n = 7$) smoked both the water-pipe and cigarettes. In addition, 7 out of the 15 participants started to smoke only after they came to the U.S., while the rest of them started to smoke when they were in Saudi.

The type of smoking agent (hookah or cigarettes) was determined based on smell, perceived health benefits, availability of the equipment, etc. 10 participants said that they preferred the hookah to cigarettes because the hookah had a better smell than cigarettes. Interestingly, some of them believed that because the hookah had a better smell, it was less harmful to health compared to cigarettes. In addition, five participants smoked the hookah less often because they did not have the equipment to do it, so they only smoked it at their friends' homes. Furthermore, since smoking the water-pipe needs some preparation and takes a longer time, some of the participants chose to smoke cigarettes, as it was more convenient and required no preparation.

The Major Facilitators

Social and leisure activity

Every single student said that being with a friend was a trigger of the smoking behavior. The majority of them said they rarely smoked alone. Specifically, they expressed that smoking the hookah was something they did more often with friends compared to smoking cigarettes. They explained that when they smoked the hookah, they usually shared the equipment, which made it more entertaining. Eight interviewees admitted that smoking had become an indispensable part of their social events, such as weekend parties. Saad and Majd commented:

Sometimes I can control myself but usually I ask them for one, because when I see them all smoking I would ask for one.

I am not addicted to cigarettes. I am just a social smoker. I smoke because my friends do so.

About one-third of the participants chose to smoke as a leisure activity. They expressed that there were not many leisure activities they could do beyond school time, so smoking became an entertainment. In addition, Saudi participants also pointed out that unlike American students who often chose drinking as a leisure and social activity, they did not drink for religious reasons, which made it more challenging for them to socialize with American friends. As a result, smoking is a leisure activity that they can do it with their Saudi friends or alone. When they were at a party, smoking was something they did together for fun, but when they were alone and felt there was nothing else that interested them, smoking became a leisure activity. Basir commented:

Sometime I felt bored and nothing else to do, it (smoking)'s the only way of entertainment for me.

Smoking as a social and leisure activity also prevents participants from quitting. Even though all participants were currently smokers, approximately 75% of the participants actually thought about quitting. Most of them agreed that having smoking friends or smoking to socialize with friends made quitting very challenging. Saal's comment well reflected this:

I would say, (one barrier was) that a lot of my friends smoke so it's hard to be around them without smoking, and also seeing the cigarette in supermarket can be really tempting.

Academic pressure and stress

Five out of the 15 students (33.3%) said that stress was another trigger of their smoking behavior. They explained that studying in the U.S. as an international student was very stressful, and when they felt stressed by schoolwork, they tended to light a cigarette. The cigarette helped them to reduce their stress level and concentrate when studying. The following quotes from Ali and Sabur expressed this well.

It was because of schoolwork (that I smoke). I am having too many hard classes, so smoking is just a way to relieve my stress, and it is kind of away to lose time when am studying. I am a commuter so the college life, (things) like all the

parties that are going on do not affect me, but the stress from all schoolwork and difficult classes made me smoke more.

Absence of family's influence

One-third of the students commented that they were not allowed or expected by their families to smoke in Saudi. Being in the U.S. alone, they felt that they had more freedom to do things they wanted to do, including smoking. Two students, Mahad and Basir commented, respectively:

I don't like to smoke over there (at Saudi) because I don't want to get in trouble with my family. My parents would be very angry if I do so. But now I am not, they do not know what I do and I feel I do not have the pressure from my family to keep me away from smoking.

Both my dad and brother smoke hookah. My dad is a heavy hookah smoker, and my younger brother smokes occasionally...even so, my dad would be extremely mad if he finds out that I smoke. But if I smoke here, they would not know so I do not have to worry about it.

Protective Factors

Cost and accessibility

About 20% of the participants smoked less in the U.S. compared to when they were in Saudi. One major reason was the cost. They revealed that cigarettes were much cheaper in Saudi compared to in the U.S. As an international student with no income; they had to consider the cost of smoking. Actually, about 75% of the participants said that they drove to a neighboring state to buy the cigarettes because the price was much cheaper than in the local stores. Saal expressed:

First of all, it (cigarettes) is way cheaper in Saudi, all of my friend smoke, and am all the time with my friends, and finally, it can get very boring in Saudi and we have nothing else to do. And beside there are a lot of hookah places in Saudi.

Most participants revealed that it was much more difficult to buy cigarettes in the U.S. compared to Saudi. There were only a few designated places where they could purchase cigarettes. The community in which the college is located recently raised the legal age to purchase cigarettes to 21 and the major drug store chain nearby no longer sells tobacco products. Moreover, as most of them did not have a car, they had to either walk or ask friends who had a car to offer them a ride to buy cigarettes. Overall, participants revealed that the low accessibility to cigarettes made smoking more challenging for them.

Restrictions

Saudi students also agreed that there were more smoking restrictions in the U.S. (e.g., no smoking policy in public places) than in Saudi Arabia, which also discouraged their smoking behavior. Actually, as the participants' institution had limited smoking areas on campus, most participants said they smoked more on weekends when they were at home or at friends' homes

instead of on campus. Jamal and Ali expressed, respectively:

I think in America there are a lot of restrictions on smokers, like you can only smoke outdoor and even some outdoor places you can't smoke in, while Saudi Arabia there are a lot of places where we can smoke indoor, also in America the request to see an ID before you buy cigarettes while in Saudi they do not. The price and taxes on cigarettes here are very expensive compared to Saudi...also now CVS is starting to be cigarettes free market (they do not see cigarettes anymore), which makes buying cigarettes more difficult. I live on campus. I am not allowed to smoke in my room. In addition, neither of my roommate smokes, so I do not have anybody to smoke with. Hence, I smoke less after I came to the U.S. I only smoke with my Saudi friends now.

American culture

American culture also played a positive role in terms of discouraging smoking behavior. They noted that the U.S. was very "smoking unfriendly." Besides the high cost and low accessibility of cigarettes, and restrictions of smoking area, they also noticed that American students did not like others to smoke around them. For example, five Saudi students revealed that even if they smoked at the designated smoking areas, some American students still minded the smoke they created and showed dislike toward their smoking behavior.

In addition, a few students commented that American students, in general, pursued a more positive lifestyle compared to Saudi culture such as exercising, healthy eating, and not smoking. The relatively positive lifestyle that American students pursue also encouraged Saudi student to revisit their own health behaviors. Even they had not quit smoking yet, they were more aware of other healthier choices. Saad and Abdul commented, respectively:

Even there are places on campus where you can smoke, I still try not to do it on campus because Americans would mind if I smoke in front of them. I think they just care about their health more. Whereas in Saudi, I can smoke everywhere and if people see me smoke, they will come to join in me. When I was in Saudi I was lazy, I didn't go to the gym or eat healthy and smoked frequently, but when I came here my lifestyle changed and I became more healthy so I didn't smoke as much, because I wanted to be a healthier person.... everyone is trying to live a healthy lifestyle and I guess I just want to be one of them.

DISCUSSION

This study found that socializing with friends and leisure activity, academic pressure and stress, and the absence of family influences, were major factors facilitating smoking in Saudi international students. Several factors serve as protective factors against smoking including the cost of cigarettes, accessibility, strict smoking policy, and American culture.

First of all, this study also found that water-pipe smoking was popular among Saudi international students in the U.S. Many

participants had the false belief that water-pipe smoking was less harmful than cigarette smoking although water-pipe smoking is identified as being as harmful as cigarette smoking [22]. The pleasant taste and aroma of the water-pipe may have made them believe it was relatively healthy. This may also be because the widespread attention focused on the dangers of cigarette smoking unintentionally encourages water-pipe smoking, as sometimes happens with smokeless tobacco and more recently electronic cigarettes. In addition, in some Arab countries, hookah smoking carries less social stigma than cigarette smoking [23]. Most of the smoking education programs in the U.S. focus on cigarette smoking, as the water-pipe is less popular in American colleges and universities compared to those in Saudi Arabia. The results herein indicate that colleges and universities should also provide water-pipe smoking related education to their Saudi international students.

The major motivation to smoke was socializing with friends, which is a common motivation for smokers in both Saudi Arabia [12,24] and the US [25]. However, being away from family and friends makes social support more important for international students than for domestic students [26,27]. According to Berry's acculturation theory [28], international students who have not successfully integrated or assimilated to the host country often socialize with their peers who are from the same countries. They also practice activities together to manage acculturation stress including smoking, drinking, and cooking. Because Saudi students may lack other social support, smoking is a norm when they socialize with each other. Research also found that social interaction with host nationals provided both moderating and mediating effects related to decreased levels of stress and the difficulties associated with cultural adaptation [29]. Social support and the campus environment have more profound impact than factors such as individuals' knowledge and attitude toward smoking [30]. This study suggests, however, that more social support should be provided to Saudi international students so they can interact more with other students, particularly non-smokers, and break the norm of smoking.

Because international students, in general, do not have many family and friends near the host institution, they lacked social connections to keep them entertained during their leisure time. In addition, for religious reasons, Saudi students do not drink, which reduces their social interactions with American students among whom drinking is more common [31]. Obviously, Saudi students should not be encouraged to drink to socialize with other American students (which is another problem that must be addressed), but when more culturally acceptable and appealing activities are introduced and available to them, they are less likely to rely on smoking as a leisure activity.

Many participants indicated that the coursework in the U.S. was very challenging for them, so smoking became one of their stress management tools. Research has shown that, as English was not the first language for most international students, they usually experienced more academic difficulties compared to domestic students [20]. This indirectly leads to their practices of unhealthy behaviors including smoking

and drinking. In addition, previous research also found that academic performance was negatively related to the odds of smoking among male college students in Saudi Arabia [32]. Hence, colleges and universities should provide more supports targeted to international students to reduce their stress level and help them become more successful academically.

Unlike previous studies reporting that family has profound influence on college students' smoking behavior [33], this study found that being away from family can also serve as a trigger to initiate smoking behavior for Saudi international students, as they felt their parents no longer controlled their behaviors. This may be more true for Saudi male students since in Arabic culture, 93% of parents did not allow their children to smoke [14]. As this restriction disappeared after they came to the U.S., they were more likely to start smoking.

The current studies also found that most participants indicated that they either tried to quit previously or planned to do so in the near future. Unfortunately, none of them quit successfully. This indicates a lack of support for international students to quit smoking. Even though the quit-smoking counseling programs are often available to international students, studies found it was challenging for them to use due to culture and language barriers [34]. It is suggested that colleges and universities that have a high enrollment of international students should make tailored plans to reach out to those students, identify their health-related needs, and help them achieve a healthy lifestyle. For example, a study conducted by Yan *et al.* reported that a 6-week peer health education program helped international students to improve their knowledge of and attitude toward physical activity, nutrition, and smoking [35].

One of the most interesting findings was that American culture played a positive role in reducing the smoking behavior. With the success of the anti-smoking campaign that has been going on since 1965, the smoking rate among Americans decreased from 42.4% in 1965 to 16.8% in 2014 [36]. As people are also more aware of second-hand smoking, we found that their negative attitudes toward smoking (and its smell) have influenced the Saudi students and changed their attitudes toward smoking to some degree. In addition, a lot of participants expressed that observation of their American peers trying to pursue a healthier lifestyle (e.g., exercise and healthy diet) made them reexamine their own health behaviors. According to Berry's acculturation theory [27], this showed that although the Saudi students had not changed their behavior yet, the new environment (i.e., American culture) has impacted their attitude toward a healthier lifestyle. Previous studies also reported the positive impact of American culture on international students' health behaviors such as physical activity [9].

This is the first qualitative study that examines smoking behavior among Saudi international students in the U.S. The results of this study may not only help to understand their smoking behavior but may also provide guidance for future intervention programs to help them quit smoking. The limitations of the study included the small number of participants and that the participants were from one institution, with a relatively low

total number of international students. In addition, having a female interviewer may limit the amount of information that the male interviewees gave.

CONCLUSIONS

Findings from the study call for comprehensive strategies for intervening and preventing Saudi students' tobacco use, including the use of the water-pipe. In addition, it is necessary to pay attention to their social needs, the level of stress, and the influences of the American culture. Specifically, social support programs, as well as wellness services for international students, should be an integral part of the overall campus services for students.

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Source of Support: Nil, Conflict of Interest: None declared.