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#### Original Article

# Factors associated with the willingness to quit smoking among a cohort of university students in the KSA



Yasser S. Almogbel, MS<sup>a</sup>, Susan M. Abughosh, PhD<sup>a</sup>, Ahmad A. Almeman, PhD<sup>b</sup> and Sujit S. Sansgiry, PhD<sup>a,\*</sup>

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#### الملخص

أهداف البحث: هدفت هذه الدراسة إلى تحديد العوامل التي يمكن بها التنبؤ بالاستعداد للإقلاع عن التدخين بين مجموعة من الطلبة السعوديين.

طريقة البحث: تم في هذه الدراسة المقطعية توزيع استبانة على مجموعة من الطلبة الذكور من ثلاثة مراكز للتعليم العالي. خضعت البيانات المستحصلة للتحليل ثنائي المتغير واختبارات الانحدار اللوجستية لتقييم العوامل المرتبطة بالاستعداد للإقلاع عن التذخين.

النتائج: كان ٢٤٪ من بين الـ ٤٦٧ متجاوب للاستبانة مدخنين حاليين، بينما كان ٢٥٪ من بين هؤلاء المدخنين لديهم الرغبة في الإقلاع عن التدخين. تبين من التحليل ثنائي المتغير أن المحاولات السابقة للإقلاع عن التدخين، ورسائل مكافحة التدخين في التلفاز والصحف كان لها علاقة وثيقة بالقابلية للإقلاع عن التدخين. كما بين التحليل الانحداري اللوجستي متعدد المتغيرات أن متغيرا واحدا فقط كان مؤشرا ذا قيمة إحصائية في التنبؤ بقابلية الإقلاع عن التدخين، وهو وجود محاولة سابقة للإقلاع عن التدخين.

الاستنتاجات: تبين نتائج هذه الدراسة أن الطلبة السعوديين المدخنين الذكور لديهم الرغبة في الإقلاع عن التدخين، وقد بذلوا محاولة سابقة غير ناجحة في الإقلاع عنه وهم على استعداد لإعادة المحاولة. ينبغي استحداث البرامج الناجحة لهذا الغرض فيما يخص طلبة الجامعة الذكور المدخنين في المملكة العربية السعودية لمساعدتهم على تحقيق رغبتهم في الإقلاع عن التدخين وعدم العودة إليه.

الكلمات المفتاحية: المملكة العربية السعودية؛ برامج مكافحة التدخين؛ الطلاب الذكور الجامعة؛ أقلع عن التدخين

E-mail: ssansgiry@uh.edu (S.S. Sansgiry)

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#### Abstract

**Objectives:** The aim of this study was to determine the predictors of the willingness to quit smoking among a cohort of male Saudi students.

**Methods:** In this cross-sectional study, a questionnaire was administered to a cohort of male students that were recruited from three institutes of higher education. Using the retrieved data, bivariate analysis and logistic regression tests were performed to assess the factors associated with the willingness to quit smoking.

Results: Of 467 participants, 24% of respondents were current smokers, while 65% of these smokers were willing to quit smoking. In the bivariate analysis, past attempts to quit smoking and the anti-smoking messages on TV and in newspapers were significantly associated with the willingness to quit smoking. Only one variable — past attempts to quit smoking — was a significant predictor of the willingness to quit smoking, as shown by the multivariate logistic regression analysis.

Conclusion: The findings of this study indicate that Saudi male students who smoke are willing to quit smoking; having unsuccessfully attempted to quit smoking in the past, they are willing to try again. Successful programs should be developed for male university students in KSA to assist them in their quest to quit smoking and maintain cessation.

**Keywords:** Anti-smoking programs; KSA; Quit smoking; University male students

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<sup>&</sup>lt;sup>a</sup> Department of Pharmaceutical Health Outcomes and Policy, College of Pharmacy, University of Houston, Houston, United States

<sup>&</sup>lt;sup>b</sup> Pharmacology and Therapeutic Department, College of Medicine, Qassim University, Buraydah, KSA

<sup>\*</sup> Corresponding address: Department of Pharmaceutical Health Outcomes and Policy, College of Pharmacy, University of Houston, 1441 Moursund St, Houston, TX 77030, United States.

#### Introduction

Smoking is responsible for approximately 5.6 million deaths per year worldwide, and that figure is expected to exceed to eight million by 2030. Smoking is known as the leading preventable cause of death around the world. 1,2

The KSA is known as one of the top 10 cigarette importers worldwide.<sup>3</sup> A study was conducted on 2564 Saudi students in 2010 and found that 8.9% of the participants were current cigarette smokers.<sup>4</sup> In addition, the study found that male students were two times more likely to be current smokers than female students. This discrepancy may be because smoking is considered a shameful habit for females in the KSA.<sup>5</sup> Because there is no strict legal age for purchasing cigarettes in the KSA, most Saudis start smoking at an early age (under 15 years of age).<sup>6</sup> The social, economic, and health costs associated with all tobacco consumption in 2010 was estimated to be approximately \$1.3 billion in the KSA.<sup>7</sup>

Because smoking is a major factor in different health complications (e.g., cancer, heart disease, stroke, and lung diseases), cessation through intervention procedures is vital to improving the health of individuals. However, nicotine is a highly addictive substance, and it is difficult to quit. 9,10 Therefore, behavioural intervention is one of the primary techniques used in smoking cessation programs. According to Treating Tobacco Use and Dependence Guidelines, smoking cessation intervention should start assessing the smoker's intention to Modification of addictive behaviour is based on stagebased models of behaviour, starting with no desire to quit smoking and followed by willingness to quit smoking (intention to quit), which in turn is followed by preparing and implementing the behaviour modification. Maintaining the behavioural modification is the final step after achieving the change. 13,14

To date, no study has comprehensively evaluated predictors of the willingness to quit smoking in the KSA. Identifying these factors in specific cultural and socioeconomic settings is vital to developing appropriate intervention programs. Studies conducted in different countries have reported age, marital status, income, addiction level, past attempts to quit, social pressure, number of smoker friends, smoking status of family members, and antismoking media messages as significant predictors of the willingness to quit smoking. 13,16-21

Because the prevalence of smoking in the KSA is skewed more toward men than toward women and there is an exponential rise in smoking behaviour in the youth, the objective of this study was to examine predictors of the willingness to quit smoking among a sample of male college students in the KSA.

#### Materials and Methods

Study design and data source

A cross-sectional study was conducted by using a pretested, validated, self-administered questionnaire to predict the willingness to quit smoking among a sample of Saudi male college students over 18 years of age. 14,20,23-25 Data

were collected between December 2011 and January 2012. This study was conducted in three higher education institutes in the KSA. Two universities provide unspecialized general higher education and are located in the cities of Buraydah and Al-Hasa. The colleges of pharmacy, dentistry, and applied medical science at Qassim University agreed to participate. At King Faisal University, the only college that agreed to participate was the college of pharmacy. The third institute is a technical college located in Buraydah city. It provides education in engineering and computer science. All of these colleges admit students after secondary school. Approximately 70,000 students attend these three institutions. Students were asked to participate voluntarily by filling out an anonymous questionnaire about their willingness to quit smoking. The students were assured that the collected data would be kept confidential, and no personal identifiers were requested. A convenience sampling technique was used to conduct this study. Participation in this study was voluntary, and a written informed consent letter was provided before commencing the data collection. The questionnaire was distributed in all colleges that agreed to participate. The faculty at each university who agreed to assist distributed the questionnaires to students before their lecture time was completed. Students were provided approximately 15-20 min to complete the questionnaire. Questionnaires were collected immediately by requesting respondents to drop the completed questionnaire in a box that was available in each lecture room. In each institute, one teaching faculty member was in charge of distributing and collecting questionnaires. The study included students with medical and non-medical backgrounds. The questionnaire was approved by the Committee for the Protection of Human Subject at the University of Houston, USA, and the deans within each college where the data were collected.

#### Questionnaire design

The original questionnaire was developed in English; it was then translated into Arabic using a translation-back-translation technique.<sup>26</sup> The translated Arabic version was validated by three bilingual experts. Further, the questionnaire was tested for face validity and content validity. The reliability of the questionnaire's questions was assessed using the test-retest method by which 10 subjects were provided the questionnaire at two different moments two weeks apart, and the result was greater than 0.7 for all questions.

Variables were selected based on previous studies and included age, income, marital status, number of smoking friends, social pressure to quit, number of past attempts to quit, addiction level (using the Fagerstrom Test for Nicotine Dependence), smoking status of family members, and antismoking media campaigns.<sup>27</sup> There is no cutoff between nicotine dependence and non-nicotine dependence. However, the higher the FTND score is, the higher is the level of nicotine dependence, and vice versa. In 1990, Fagerstrom suggested classifying the FTND score into five categories based on a study that was performed with 1447 Canadian smokers.<sup>28</sup> Most of the FTND scores were between 3 and 7, with a mean of 5.15 and a standard deviation of 2.23. Scores

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