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Abstract

Background: The ongoing Syrian war has resulted in many changes in the social and economic life of Syrians. To date, no study has documented the relationship between smoking behaviour and the war.

Aim: To determine the prevalence of cigarette smoking among university students during the crisis in Damascus, Syrian Arab Republic, and the impact of the war on smoking behaviour.

Methods: We conducted an anonymous online cross-sectional survey of 1027 undergraduate students from all years and colleges at Damascus University.

Results: The overall prevalence of tobacco smoking was 24.73% for cigarettes and 30.4% for waterpipe. Prevalence of cigarette smoking was significantly higher in men, non-health profession students, and in students living away from their families. There was no significant difference in prevalence of smoking cigarettes when comparing students according to their origin (urban vs rural), year of study, and change of residence due to war. War was associated with a significant increase in mean number of cigarettes smoked daily, and 53.1% of smokers reported that the number of cigarettes consumed per day had increased since the beginning of the war.

Conclusions: Increased smoking is an additional health concern in areas of conflict and may require special consideration and efforts by public health authorities.

Keywords: Syria, civil war, students, smoking, tobacco

Citation: Idris A; Al Saadi T; Turk T; Alkhatib M; Zakariah M; Sawaf B; et al. Smoking behaviour and patterns among university students during the Syrian crisis. East Mediterr Health J. 2018;24(2):160-154. https://doi.org/10.26719/2018.24.2.154.

Received: 10/08/15; accepted: 01/03/17

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Introduction

Tobacco is the only legal drug that kills many of its users when used exactly as intended (1). The World Health Organization (WHO) has estimated that tobacco use (smoking and not smoking) is currently responsible for the death of ~6 million people worldwide each year (1).

A previous study in 2004 investigating tobacco use among university students in the Syrian Arab Republic showed worrying trends, with 23% of students smoking cigarettes and 15% smoking waterpipes (2). In 2008, investigations of cigarette and waterpipe smoking among Syrian medical students showed that the overall prevalence of tobacco smoking was 10.9% for cigarettes, 23.5% for waterpipe and 7.3% for both (3).

Since the beginning of the Syrian war in 2011, the Syrian Arab Republic has experienced a decline in national standards of living and steep rises in the prices of commodities, as well as many changes in the social and economic lives of Syrians (4). By July 2013, the Syrian economy had shrunk by 45% since the start of the conflict; unemployment increased fivefold;

the value of the currency decreased to a 6th of its prewar value; and the public sector lost US$ 15 billion (4, 5). As of late of 2014, around 60% of Syrians are jobless and around the same proportion live in extreme poverty, meaning that they cannot afford the basics that they need to stay alive or support their household, according to a United Nations backed report (6). Today, the median Syrian salary is < 16 000 Syrian pounds per month (7) (approximately US$ 64). It is estimated that out of the 10.8 million Syrians affected by the conflict, ~6.5 million have been displaced (8). Education is in a state of collapse with 50.8% of all school-age children no longer attending school during 2014–2015. Furthermore, almost half of all children in Syria are 3 years behind where they are expected to be in standard grade objectives (6). These dramatic changes may combine to affect smoking habits among Syrians.

In 2012, noncommunicable diseases (NCDs) were the leading cause of death worldwide (9). Patients with NCDs in low- and middle-income countries have rapid disease progression (10), therefore, the impact of NCDs is particularly severe in these countries (9). However, governments of low- and middle-income countries fail to keep pace with the growing demands for prevention of NCDs (10). Tobacco is one of the four most common modifiable risk factors for NCDs (10). The role of tobacco in NCDs highlights the importance of investigating its consumption, especially in a low-income, war-torn country like the Syrian Arab Republic.

In this study, we aimed to determine the prevalence of cigarette smoking among university students during the crisis in Damascus, Syrian Arab Republic, and the impact of the war on smoking behaviour. We also investigated students' knowledge and awareness of the risks of smoking.

Methods

Study design

We conducted an online cross-sectional survey at Damascus University on 31 May 2015 during the WHO "World No Tobacco Day". The survey was directed only at undergraduate students. Accordingly, 2000 undergraduate students from all years and colleges were randomly selected from the university students' lists, and invited to participate in the online survey via Google Forms after they logged into their personal email to ensure no repeated results were generated. The total number of responses was 1057 with a response rate of 52.85%; 30 of these responses were incomplete and were excluded.

The questionnaire was written in Arabic and consisted of 17 questions about the demographic and academic details of the participants; their smoking behaviour before and after the beginning of the Syrian war; family and peer smoking behaviour; and personal attitudes and beliefs about smoking and quitting. The questionnaire was designed by the authors after reviewing the

related medical literature and was not piloted or validated locally. Questions were in multiple choice format. We added an “others” option, with a space to provide participants’ unique answers to questions that investigated reasons for starting, quitting or not trying smoking.

Definitions

Smoking status was established in accordance with the criteria for cigarette smoking used in the US Centers for Disease Control and Prevention (CDC) Morbidity and Mortality Weekly Report. (11). The criteria defined a current smoker as a person who had smoked ≥ 100 cigarettes during their lifetime and was currently smoking. A former smoker was defined as a person who had smoked ≥ 100 cigarettes during their lifetime but reported quitting smoking. Individuals who reported smoking < 100 cigarettes during their lifetime or having never smoked were categorized as nonsmokers. Those who were defined as former smokers or nonsmokers were classified as currently nonsmokers.

For waterpipe smoking, participants were asked if they smoked a waterpipe as a regular habit. Characteristics of use pattern, such as frequency, were considered to be out of scope for this study and were not assessed.

Students studying medicine, dentistry or pharmacy were categorized as health profession students. Students from other faculties were categorized as non-health profession students.

Ethical issues

Before distributing the questionnaire, the objectives of the study were explained to the participants, and they were informed that their participation was voluntary, and anonymity was assured. Ethical approval of the study was obtained from the Ethics Committee, Faculty of Medicine, Damascus University.

Statistical analysis

Participants’ characteristics were reported as frequencies and percentages (for categorical variables) or means and standard deviations (SDs) (for continuous variables). To investigate the statistical significance of the differences in participants’ characteristics between current cigarette smokers and current nonsmokers, we used the $\chi 2$ test (for categorical variables) or t test (for continuous variables). P

Results

Participants’ characteristics and smoking prevalence

Participants' characteristics are reported in Table 1 . The study sample consisted of 575 men (55.9%) and 452 women (44.1%), with an overall mean age (SD) of 21.55 (2.04) years (range 18–26 years). The overall prevalence of current tobacco smoking was 24.73% for cigarettes (39.82% male, 5.54% female), and 30.4% for waterpipe (33.2% male, 26.8% female). Overall prevalence of former cigarette smokers was 4.47% (7.3% male, 0.88% female). Mean age for current smokers and current nonsmokers was 21.98 (1.92) and 21.34 (2.06) years, respectively. Prevalence of cigarette smoking was significantly higher in male compared to female students (39.82% and 5.54% respectively; P < 0.001); in non-health profession compared to health profession students (31.26% and 18.56% respectively; P < 0.001); and in students living away from their families compared to those living with their families (42.34% and 20.58% respectively; P < 0.0001). There was no significant difference in prevalence of smoking cigarettes between those from rural or urban areas (24.4% and 24.9% respectively; P = 0.87). There was no significant difference between those in their 1st, 2nd or advanced (3rd or more) year of study regarding being current smokers (P=0.19), or between those who changed their residence due to war and those who did not (P=0.26). Mean number of close friends who were currently smoking cigarettes was significantly higher in current smokers compared to nonsmokers (3.19 and 1.75 respectively; P<0.001). mean="" number="" of="" household="" members="" who="" were="" currently="" smoking="" cigarettes="" was="" significantly="" higher="" in="" current="" smokers="" compared="" to="" nonsmokers="" 1="" 73="" and="" 49="" respectively="" p="" images="" stories="" emhj="" documents="" vol24="" 02="" 24-02-06-t2="" pdf="" target="_blank" table="" 2="" a="" the="" results="" indicate="" possible="" negative="" effect="" war="" on="" behaviour="" reported="" daily="" smoked="" increased="" from="" 8="" 84="" 7="" 91="" before="" 14="" 83="" 13="" h4="" main="" reasons="" for="" starting="" quitting="" not="" trying="" that="" made="" former="" start="" handle="" stress="" 38="" followed="" by="" friends="" influence="" 29="" 6="" new="" experience="" 25="" syrian="" 3="" finally="" family="" quit="" personal="" health="" concerns="" 71="" cost="" 17="" 4="" concern="" other="" listed="" survey="" 5="" religious="" beliefs="" 23="" two="" smoke="" among="" those="" had="" never="" financial="" work="" 0="" students="" knowledge="" about="" cigarette="" awareness="" risks="" more="" than="" thirds="" all="" participants="" agreed="" with="" statements="" some="" harmful="" aspects="" href="/images/stories/emhj/documents/vol24/02/24-02-06-t3.pdf" however="" smaller="" percentage="" indicating="" lower="" h3="" discussion="" understanding="" prevalence="" factors="" associated="" is="" major="" public="" developing="" countries="" because="" delayed="" effects="" morbidity="" mortality="" attributable="" have="" yet="" surpassed="" developed="" but="" are="" likely="" do="" so="" near="" future="" 12="" our="" study="" revealed="" 39="" 82="" male="" 54="" female="" 24="" overall="" high="" 2004="" 30="" 9="" 2008="" 15="" 10="" beginning="" it="" remained="" close="" neighbouring="" such="" as="" lebanon="" 26="" jordan="" 50="" 28="" comparing="" across="" these="" studies="" might="" be="" limited="" fact="" each="" adopted="" different="" status="" definition="" which="" may="" partially="" explain="" differences="" there="" important="" gender="" tobacco="" habits="" men="" women="" jarallah="" et="" al="" 16="" arab="" social="" stigma="" against="" seen="" shameful="" ages="" 21="" 98="" 34="" years="" moreover="" no="" significant="" difference="" between="" 1st="" 2nd="" or="" advanced="" year="" 3rd="" subject="" can="" lead="" consumption="" regardless="" their="" age="" stage="" monthly="" after="" varied="" potentially="" due="" brand="" they="" consumed="" although="" costs="

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