Iran J Public Health, Vol. 44, No.2, Feb 2015, pp.170-175

Review Article

Trends in Current Tobacco Use, Smoking Rates and Quit Attempts among Saudi Population during Periods of 17 Years (1996–2012): Narrative Review Article

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(Received 10 Aug 2014; accepted 20 Nov 2014)

Abstract

Background: In this study, we investigated the causes behind increase trends in smoking and extent of tobacco use in Saudi Arabia. We also explored the issues related to and its impact tobacco control research and policy in the Kingdom.

Methods: Data were collected from various published articles, public data based such as WHO, Geneva and CDC Atlanta. Data were also obtained from surveys conducted by various institutions under The Global Youth Tobacco Survey (GYTS) for high school students and Global Adult Tobacco Survey (GATS) for medical student. Tobacco importation data and death rates were estimated by various International Organizations.

Results: Tobacco importation in Saudi Arabia increased from 1996 to 2012. The proportion of smokers in the KSA almost doubled especially in males from 21% in 1996 to 37% in 2012. Mortality attributable to tobacco in the KSA was estimated to account for 280, 000 premature deaths over the same period (without accounting for smuggled tobacco). The economic burden of tobacco consumption over the last 10 years (2001–2010) in the KSA was 20.5 billion US dollars (based on 2011 prices). Anti-tobacco measures in KSA have been reinforced by the enactment of anti-tobacco laws and collaboration among different government agencies and ministries.

Conclusion: If effective tobacco control strategies are not enacted, serious consequences, increasing premature mortality rates among them, will continue to threaten the KSA.

Keywords: Tobacco, Tobacco use, Smoking, Health, Saudi Arabia

Introduction

Tobacco consumption is a prevalent public health problem worldwide and is considered the world leading cause of preventable death. Five million people die from smoking-related diseases every year, particularly in developing countries (1). In 2009, smoking among men was the highest in the WHO Western Pacific Region, with 51% of men aged 15 and above smoking some form of tobacco. Smoking among women was highest in the WHO European Region at 22%, while in Eastern Mediterranean countries male smoking rates were alarmingly high in Jordan (48%), Lebanon (46%), Palestine (40.7%), and the Syrian Arab Republic (50.6%) (2, 3).

In Saudi Arabia, the increasing rate of tobacco use is also disturbing. Data extracted from a national survey between 1990 and 1993 showed that the overall prevalence of current smoking was 21.1% for males, and 0.9% for females. In 2010, the prevalence ratealmost doubled, with smokers comprising 37% of the male adult population, and 6% of female adults (4- 6). The prevalence rate of

tobacco use in Saudi Arabia is high particularly among males, while the rate of ex-smokers and waterpipes (muassel or sheesha) users appears relatively common among women (7, 8). The significant impact of tobacco use in the Kingdom of Saudi Arabia not only affects mortality and morbidity, but also extracts significant social and the economic costs (9, 10).

The differences in the rising rate of tobacco consumption may be accounted for by the negative health effects of nicotine dependence and/or by changes in smoking habits over time. Most of individuals continue to smoke in spite of knowledge regarding the negative effects of tobacco there is an apparent increase in smoking in the late 1990s.

With this background our study was aimed to investigate the caused behind increase trends in smoking through the published literature and survey regarding extent of tobacco use in Saudi Arabia. We also explored the issues related to various tobacco-control actions and policy in the Kingdom.

Methods

Ethical statement

The study was designed and approved by Institutional Ethical Board of King Saud University, Riyadh for the specified period

Review of published literature and trend data

A major source of information presented in this paper was obtained from published manuscripts, reports from websites such as "Global tobacco consumption data from world health organization (WHO), annual data from the project reports submitted to health department, Saudi Arabia, and from couple of surveillance done by non-profitable/government organization. We included studies that met 3 criteria: 1) focus on tobacco use and smoking prevalence in the Saudi population; 2) focus on issues or areas of concern as they are related to tobacco use, tobacco control measures, the economics of tobacco in KSA; and 3) studies published in English and in peer-reviewed journals in 1996 to 2012. We also included studies that carried out different methods of analysis. Studies not carried out in KSA were excluded from the study.

The Global Youth Tobacco Survey (GYTS) for high school students

A cross-sectional "Global Youth Tobacco Survey' was conducted among high school students (grades 10–12) in Riyadh, KSA, between April 2010 to June 2010 that collects data on students aged 13–15 years of age using a standardized methodology for constructing the sample frame, selecting schools and classes, and processing data.

Global Adult Tobacco Survey (GATS) for medical student

A cross-sectional "Global Adult Tobacco Survey" was conducted from September 2009 to May 2010 among 643 students attending the main Medical College of King Abdulaziz University, in Jeddah, Kingdom of Saudi Arabia.

Statistical Analysis

Statistical evaluation was done using SPSS for Windows Version 16.0 (Chicago, IL, USA) and values are used to compare differences in variables between two groups. A *P*-value of <0.05 was considered statistically significant.

Results

Between 1996 and 2012, tobacco consumption rates in Saudi Arabia become almost doubled, as shown in Table 1. According to these studies, the prevalence rate of smoking alone was 20.9% and 0.6% for males and females respectively during period of 1996-2000, which increased 21.0% and 1.2% during 2001 – 2005. There was rapid growth in the prevalence of smoking was seen 2006- 2012 which was 37% and 6% in males and females respectively (4, 5, 11, 12).

Type of tobacco according to age, gender, and intensity of use

Cigarettes were the principal source of tobacco consumption in Saudi Arabia among student (62.6%) and adult (59%) smokers (5, 13, 14) and water pipes (sheesha) were the second most fre-

quently cited tobacco source, especially among women (15- 17). According GYTS 2013, 7% of boys and 2% of girls use cigarettes, and 14% of boys and 9% of girls currently use tobacco products other than cigarettes like sheesha in the Eastern Mediterranean Region (18- 20).

Table 1: Prevalence of Smoking in Saudi Arabia and other countries

Year	Prevalence (%)				
	Global			Saudi Arabia	
	Great Britain	USA	China	Male	Female
1996 - 2000	27	23	29	20.90	0.90
2001 - 2005	26	18	31.40	21.10	1.2
2006 - 2012	22	19	28.1	37	6

Smoking in specific populations

A surveillance representing 736 health care workers (which included 235 nurses (31.9%), 371 physicians (50.4%) working in hospitals, 85 PHC physicians (11.5%), and 45 other health care workers (6.2%)) revealed an overall tobacco use prevalence of 26.3% among this population (14.8% current and 11.5% former users). In eastern Saudi Arabia, another study was conducted among health care professionals and health care workers; out of 578 individuals, only 15.1% were smokers, 13.3% were occasional smokers, 4.7% were ex-smokers, and the remaining 67% were nonsmokers. However, in another study conducted with 255 National Guard area students in Riyadh, Saudi Arabia, results showed that seeing one of their teachers smoking was a frequently-cited reason for student smoking (61.8%).

Results of GYTS and GATS

The total response rate was 92.2% and 1380 students from 15-18 years of age completed the survey, which included 606 male students (47.6%) and 666 female students (52.4%). The prevalence of students who reported that they had smoked at least one cigarette in the past 30 days was 19.5% (31.3% and 8.9% for males and females, respectively). Smoking was more common among male students (56.4%) than females (31.3%). "Ever smoked" status was associated with male gender (OR = 2.88, confidence interval (CI): 2.28–3.63), parent smoking (OR = 1.70, CI: 1.25–2.30), other member of the household smoking (OR = 2.11, CI: 1.59–2.81), having close friends who smoked (OR = 8.17, CI: 5.56–12.00), and a lack of refusal to sell cigarettes (OR = 5.68, CI: 2.09–15.48) (21).

Discussion

WHO report (Global Tobacco Epidemic, 2009) tobacco use among males is much higher in Arab nations (24.8---61.7%) compared to western nations (19.8—46%), with a reverse phenomenon for females during the different study period. Tobacco use among females is much lower in Arab nations (0.3—7.9%) compared to western nations (13.7—31.1%) (22). As of 2012, various countries such as China (28%), the United States of America (19%), and Great Britain (22%), still reported high rates of tobacco use (23-28) (Table 1). Even though rates in some countries seem to have fallen, worldwide mortality due to tobacco is still on the rise (15).

Environmental, educational, and socioeconomic characteristics of tobacco use

Prevalence of tobacco use and daily cigarette consumption were associated with age, peer pressure, and parental smoking (14, 16, 29). Higher smoking rates were reported among married people, uneducated people, and those in certain occupations (e.g. manual workers, businessmen, army officers, and office workers) (5, 25). Religion in Saudi Arabia constituted the main preventative factor among the non-smoking population (42.3%) (26).

Notably, smoking is not socially acceptable in Saudi Arabia, especially among females (5). Most

women reported that smoking sheesha, although evidence suggests that sheesha (or water pipe) smoking may be as addictive as cigarette smoking and may lead to as many adverse health effects as other forms of tobacco (19, 20). According to Arab news sources, Saudi Arabia is ranked 23rd for tobacco consumption globally; in the past years, tobacco imports have exceeded the imports of wheat (0.45 percent), corn (0.39 percent) and children's food (0.34 percent) (27).

Mortality attributable to tobacco

Tobacco use is the second leading risk factor for premature death in the world responsible for the death of 1 in 10 adults and is the leading preventable causes of all deaths (26). As estimated by the World Health Organization (WHO) in 1998, mortality attributable to tobacco in the Eastern Mediterranean Region was intermediate between developed and developing countries.

In Saudi Arabia, mortality attributable to tobacco use was estimated by the Arabian Center for Tobacco Control (2011), to account for 280, 000 premature deaths over the same period (without accounting for smuggled tobacco). The economic burden of tobacco consumption over the last 10 years (2001–2010) in Saudi Arabia was 20.5 billion US dollars (based on 2011 prices) (29).

Tobacco attributable mortality data in Saudi Arabia is similar to that of some developed countries (e.g. the United States, France and Germany where 22-23% of premature deaths are due to tobacco use) (30). According to 2011 data, tobacco use killed almost 6 million people worldwide, with nearly 80% of these deaths occurring in low and middle-income countries (30).

Legislative measures for tobacco control

An anti-tobacco law in Saudi Arabia was first adopted in 1926 by King Abdulaziz. A more recent law (2012) was adopted by the GCC Standardization Organization (GSO) which required Labelling of Tobacco Product Packages (graphic warnings) that included a requirement that picture-based health warnings cover 50% of a package front and back, with an Arabic warning on the front and an English warning on the back (31). Another form of legislation and regulation enacted in the Kingdom involved the banning of tobacco use in public places ("smoke-free environment") such as airports, restaurants, and healthcare facilities (32).

For Saudi youth, a law was enacted which prohibited all stores in the Kingdom from selling tobacco products to youth, with a penalty charged to stores that did not abide by the regulation. The Tobacco Control Program at the Ministry of Health and Secretary of the Anti-Tobacco National Committee are working with Ministry of Education and municipality officials in developing awareness campaigns to inform the population concerning the dangers of smoking and banning all storesfrom selling tobacco products to youth (33). In university communities, several anti-smoking campaigns have placed "No Smoking" signs or posters at various key locations on campus (34). In particular, Nicotine Replacement Therapy and an antidepressant in the generic name of bupropion are available in different pharmacies in the Kingdom, for which National Health Insurance will partially cover the cost (35). Moreover, the Ministry of Health has begun to provide some tobacco cessation consultationsin hospital departments, particularly those who provide services for patients with lung diseases. Thirty-three anti-smoking clinics have been established across the Kingdom for providing treatment services (pharmacological and non-pharmacological) for smokers (36). It is important, after evaluation of the effectiveness of these programs, to spread these consultations to other services and to involve primary care doctors in such cessation activities by organizing training courses on smoking cessation education.

Conclusion

If effective tobacco control strategies are not enacted, serious consequences, increasing premature mortality rates among them, will continue to threaten the KSA. Targeting the general population may also lead to declines in tobacco consumption by youth, and help instill anti-smoking habits among young people.

Ethical considerations

Ethical issues (Including plagiarism, informed consent, misconduct, data fabrication and/or falsification, double publication and/or submission, redundancy, etc.) have been completely observed by the authors.

Acknowledgments

The author would like to extend his sincere appreciation to the Deanship of Scientific Research at King Saud University for funding this Research group NO (RG# 1435-024). The authors certify that there is no conflict of interest with any financial organization regarding the material discussed in the manuscript.

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