

Saudi Arabia Global Health Professional Students Tobacco Survey 2010–2011

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Abstract: The Saudi Arabia GHPSS Global Health Professional Students Survey assess the prevalence of cigarette smoking and other tobacco use, as well as it sheds the light on the role of health professional students and their school environment in prohibiting smoking. In addition to information about barriers of smoking cessation in health professional students such as early age of smoking, smoking urge especially within half to one hour of wake up, previous failed trials to tobacco cessation, and if they received help for tobacco cessation or not, insufficient knowledge of health professional students about smoking hazards and their inadequate training on tobacco cessation and its treatment. It includes also attitude of health professionals towards tobacco cessation and anti –smoking campaign. Comparison also is made between health professional student’s smokers and non smokers to Environmental Tobacco Exposures “negative smoking exposures” at home and outside home. The Saudi Arabia GHPSS is a Health Professional Students School based survey conducted for the studying year 2010-2011. A two stage sample design was used to produce representative data for Saudi Arabia. At the first stage a census was done for all health professional schools. At the second stage all health professional students within all schools were surveyed. All health professional students were eligible to participate in the survey. Health professional students were interviewed through using self administered questionnaires containing multiple choice questions. Data entered and analyzed using Epi info software. The response rate for schools was 100%, the response rate of health professional students reached 90.8% as most of them were willing to conduct the survey. The survey concludes that the prevalence of cigarettes and shisha smoking is considerably high in Saudi Arabia's health professionals students especially among dental and pharmacy students and among males compared to females. It also concludes that the National Saudi Tobacco Control Program apparently working effectively, but still program activities needs to be intensified further to reduce smoking in health professional students especially nurses and physicians because of their great role in advising and treatment of smokers patients.

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1. Introduction

Tobacco use a major public health problem causes considerable morbidity and mortality worldwide. Evidently, smoking cause's more than 5 million deaths per year and by the year 2020 will exceed 10 million a year.^(7,24,33) Approximately, 100.000 youths use cigarettes and other tobacco products for the first time, and expectedly 80% of them will smoke in the future. Besides high prevalence of smoking and high mortality and morbidity of smoking; there is increase of tobacco marketing and promotional strategies of cigarettes manufacturing companies.⁽²⁴⁾ Governments' action to establish various tobacco control initiatives can prevent mortality and tobacco related diseases from happening and save a significant number of lives. Tobacco control measures include: Raising tobacco prices by imposing higher excise taxes, advertising and marketing bans and restrictions, and clean indoor air provisions.⁽²³⁾ A 10% increase in tobacco tax

could lower tobacco consumption by 8% and save 10 million lives. It was found that this is the most effective tobacco control measure. It is estimated that most of the reduction in the number of deaths (about 90 percent) will occur in low- and middle-income countries.⁽³¹⁾

The fact that the majority of 5.1 million global tobacco deaths occur in the Asia, make that proper surveillance of tobacco related morbidity and mortality is important. Furthermore, since Asia is the one of the largest producer of tobacco and the largest consumer of tobacco and tobacco products, it is imperative that the work of the industry will also be monitored in an attempt to counter the ever growing menace of tobacco. Saudi Arabia is one of the countries in Asia with high tobacco consumption rates.⁽³⁴⁾

Apart from the amount of disease, disability, and premature death that it causes, tobacco is unique among the preventable causes of disease because: It is

always dangerous, and it is highly addictive to many consumers, it is actively and energetically promoted; by one of the world's largest and most powerful industries, and its use harms not only those who consume it; but also other people who are exposed to their smoke. These important characteristics make that tobacco use is a particularly difficult public health problem, requiring urgent action from a wide range of sources, including political action.⁽³⁷⁾

With the latest adoption of the Framework Convention on Tobacco control by all members of the WHO, there exists both an opportunity as well as a risk for developing countries. The opportunity is to strengthen its anti-smoking policies and collaborate with the international community towards smoking control. The risk is increase tobacco consumption by citizens if countries do not take advantage of the convention and progress aggressively towards protecting their citizens. While the prevalence of tobacco use has declined in some high-income countries, it is increasing in some of developing low and middle-income countries.⁽¹⁷⁾ In Eastern Mediterranean countries the prevalence of tobacco use is impressively rising especially among youths and women attributed to in-effective tobacco control measures, economic boom and globalization, and strong marketing plan of tobacco industry; as tobacco industry focus on developing nations, where the awareness of tobacco dangers is lower and where enforcement of anti-smoking laws are not as strict.^(2,3,15,22)

As indicated before, there is a wide acceptance of the need for more tobacco control activities on an international level. Tobacco control requires efficient and systematic surveillance mechanisms to monitor the trend of consumption. With this in mind, the World Health Organization, the Centers for Disease Control and Prevention; in collaboration with other partners, are developing a Global Tobacco Surveillance System (GTSS). The Global Tobacco Surveillance System (GTSS) using standard methodology and design among specific groups: Youths, school personnel and health professional students through three surveys, which is; the Global Youth Tobacco Survey (GYTS), the Global School Personnel Survey (GSPS), and the Global Health Professional Students Survey (GHPSS).^(12,13,32) This system will provide a standardized and reliable structure and capacity to track and assess the tobacco situation within and across countries and to disseminate this huge epidemiological information. With this information, national authorities can critically evaluate their own tobacco control situation in light of the experiences of other countries and use "lessons learned" to enhance their own tobacco control efforts.^(4,6,12-14,28-30,36)

Several studies in the Gulf Cooperation Council (GCC) countries have confirmed alarming figures of tobacco use among boys, and shisha smoking especially among females.^(2,3,15,22) In Bahrain secondary school smoking survey showed that 25% of male students in intermediate grade were current smokers.⁽³⁾ In Saudi Arabia's many studies have been conducted to estimate tobacco use among different groups within Saudi population. These studies show an alarming expansion of tobacco use as follow:

In 2001:

The first round of GYTS (Global Youth Tobacco Survey) which was conducted in the **Riyadh region** shows that one fifth of male students were current smokers of any tobacco products (20%).^(15,16)

In 2006:

The first round of GTSS (Global Tobacco Surveillance System) shows that more than one third of males (35.8%) versus 5.8% of females were current smokers.

In 2007:

The second round of GYTS shows that 19.3% of students were current users of any tobacco products (males 24.2%, females 11.2%).⁽¹⁾

In 2009:

The third round of GYTS shows that there is decrease in the number of students as current users of any tobacco products to 14.9% (male 21.2%, female 9.1%).⁽¹⁸⁾

In order to continue monitoring the prevalence of smoking in Saudi young people, prevention and control of tobacco use among them, it is necessary to run new rounds. Two rounds were conducted in 2010-2011. One of them is GHPSS "Global Health Professional Students Survey", and the other is GSPS "Global School Personnel Survey.

Objectives

- To estimate the prevalence of tobacco use (cigarettes and other tobacco use) among health professional students.
- To determine the role of health professional students and school policies on prevention and control of tobacco use.
- To identify barriers and obstacles faced by health professional student's in their tobacco cessation trials.
- To assess the needs for training of health professional students on tobacco cessation and treatment options available.
- To determine the attitude of health professional students towards tobacco cessation and anti-smoking campaigns.
- To measure the exposure of smokers and non smokers' health professional students to environmental tobacco smoke (negative smoking), both at home and outside.

2. Methodology

About Global Health Professional Students Survey (GHPSS)

It is the world's largest public health surveillance system among Health Professional schools. It is school-based Health Professional Students survey designed to enhance the capacity of countries to monitor tobacco use among health professional students, enforce policies and regulation on health professional students and the school environment to prohibit smoking and tobacco use, and guide the implementation and evaluation of tobacco prevention and control programs. The GHPSS uses a standard methodology for constructing the sampling frame, selecting schools and health professional students, preparing questionnaires, following consistent field procedures, and using consistent data management procedures for data processing and analysis. The information generated from the GHPSS can be used to stimulate the development of tobacco control programs and can serve as a means to assess progress in meeting programmed goals. In addition, GHPSS data can be used to monitor Articles in the WHO Framework convention on tobacco control.^(8,11,32)

Sample Description of 2010 -2011 study

All Medical schools, Pharmacy, Dental, Medical Sciences, Applied Medical Sciences, and Nursing schools having 3rd year students were included in the sampling frame. A census was taken of all these schools. All students within all schools were approached for the survey (census).

Table 1: Number of Health Professionals Schools and Students Enrolled and Their Response Percentage

Type of School	Schools No.	Students No.	No. Respond	Response %
Medical schools	5	205	188	91.7
Pharmacy	4	143	124	86.7
Dental	5	154	128	83.1
Medical Sciences	4	196	189	96.4
Applied Med.Scien	1	36	34	94.4
Nursing	4	174	162	93.1
Total	23	908	825	90.8

Data collection procedures and analysis

Survey procedures were designed to protect the privacy of the health professional students by allowing for anonymous and voluntary participation. The self-administered questionnaire was administered in venues in the health professional schools. Participants recorded their responses directly on an answer sheet that could be scanned by a computer.

The questionnaires used in the GHPSS consisted of 49 multiple-choice questions. The questions included solicited information on the tobacco use;

role of health professional students and school policies in prohibiting smoking; factor related to health professional students smoking behavior (such as age of smoking initiation, smoking urge after waking up, and previous trials for smoking cessation, and help received for smoking cessation); attitude about tobacco cessation and antismoking campaigns; knowledge about harmful effect of smoking; training on tobacco cessation and treatment options; and the exposures of health professional student's to negative smoking (environmental tobacco smoke) for both non-smokers and smokers. All data were analyzed and tabulated by statisticians from the WHO using Epi-Info software. It should be noted that in the case of missing answers for any question, the percentage of calculation is done on the total answered questions.

3. Results and Discussion

The results can be used to make important inferences concerning tobacco use risk behaviors in Saudi Arabia for 3rd year of medical students 22%, pharmacy students 15%, dental students 16%, medical sciences students 23%, applied medical sciences students 4% "the least contributor", and nurse students 20% (Figure 1).

The GHPSS was implemented to provide baseline data on prevalence of tobacco use among health professional students. According to this survey in Saudi the prevalence of cigarettes smoking ranges from 2.9% in applied medical science students to above 25% (25.9%, 27.3%) in dental and pharmacy students respectively. The prevalence of shisha smoking ranges from 2.9% in applied medical science students to 34.3% in dental and 28.6% pharmacy students (Table2, Figure 2). While the findings results in Yemen GHPSS 2009 show lesser smoking prevalence. Among Yemen nursing students 16.4% currently smoke cigarettes, in dental students 14.4%, 14.3% for pharmacy, and 10.9% for medical students. For shisha, among Yemen dental students 13.5 % smoke shisha, 12.9% among nursing students, 11.5% for medical and 9.1% for pharmacy students.⁽¹¹⁾ In Bahrain GHPSS 2009 show lesser smoking percentage than Saudi and Yemen as the prevalence of current smoking in medical students 10.9% and 9.4% in nursing students, also the prevalence of other tobacco use than cigarettes were in medical students 16.3% and in nursing students 10.8%.⁽⁸⁾ This higher prevalence percentage of smoking among some groups of the health professionals is alarming and negatively influence the future health professions workforce to deliver anti-tobacco counseling as they act as role models for their patients and the public in general, in addition it endangers their health as health professional smokers are liable of tobacco related diseases and premature deaths as general smokers.⁽²⁰⁾ The overall currents tobacco users in this survey

range from 5.9% in applied medical science students to 39.5% in dentist students. The percentage of ever smokers (who tried smoking even for one or two puffs) ranges from 17.6 % to 53.3%, and highlight the importance of never starting smoking (Table 2). There are 2 to 6.4 times more male current cigarette smokers than females. For shisha smoking this is 1.2 to 5.7 (Figure 3). In Yemen GHPSS 2009; the prevalence of ever and current tobacco use among males is also significantly higher than females students as Saudi GHPSS.⁽¹¹⁾ The reasons of females smoking in Saudi and Middle East countries in general should be investigated 'as female smoking considered as strange and new habits in these countries', and health education messages should be directed towards these findings.

Health professions students have been found to play important role in cessation and prevention of tobacco use among their patients as counseling by health professions students has shown an increase in smoking cessation.^(5,25) In the survey health professional students stated that their roles in tobacco cessation programs is mainly to advise patients that smoke to quit smoking and tobacco use (ranged 90.2% - 96.3%), followed by inform smokers about tobacco cessation and how to stop (84.9% -94.4%), and lastly to be a role model for their patients (83.3% -85.3%). Note that these percentages not include applied medical students as most of them are not smokers, hence it is not surprising that they are more agreement with the stated roles: 97.1% to advice patients that smoke to quit and inform them how to stop and 94.1% act as a role model (Table3, Figure 4). The Yemen GHPSS data 2009 shows that 91.8% of nursing students and only 88.5% of medical students recognize that they are role model in their society; besides over 93.9% of the dental students, 95.4% of the medical students, 93.7% of the nursing students, and 95.3% of the pharmacy students thought health professionals have a role in giving advice about smoking cessation to patients.⁽¹¹⁾ The Bahrain GHPSS data 2009 show near result of Saudi as over 80% (82.4%- 86.3%) of both medical and nursing students think that health professions serves as a role model for their patients and public, and over 91.5% of the medical students and 93.5% of the nursing students thought health professionals have a role in giving advice about smoking cessation to patients.⁽⁸⁾ In Tunisia medical students 2010 show lesser percentage in their both thoughts about health professionals serves as a role models for their patients (73.8%) and thoughts that health professionals have a role in advising patient on smoking cessation (86.4%) than previous stated surveys.⁽¹⁰⁾

In Saudi GHPSS, the percentage of cigarettes smoking or other tobacco use at schools of health

professionals is ranging from 3.7% (medical) to 15.8% (pharmacy) for cigarettes smoking and the percentage is ranging from 7.1% (medical) to 13% (dental) for other tobacco use (Table5). The presence of policies in clinics and schools of health professionals is ranging from 44.1% (applied medical science) to 68.2% (dental). This rather low when comparing the results with the enforced school policies, as that ranges from 85% (medical) to 98.7% in medical science students (Table4, Figure 5) . It found in Yemen GHPSS that enforcement of school policies banning of smoking is low as it ranges from 14.8% in nursing students to 60.6% in dental students.⁽¹¹⁾ In Bahrain more than 40% of the students reported their schools have an official policy banning smoking in their buildings and clinics; which considered less than moderate, while enforcement of school policies reached to 88% in medical and nursing Bahrain schools. So from Saudi, Yemen, and Bahrain GHPSS we found that the actual presence of school policies is not enough to ensure that they are really applied. Educational institutions of health professions students should be encouraged to provide smoke free work and study areas by banning smoking in their buildings and clinics. A smoke free work environment has shown to improve air quality, reduce health problems associated with exposure to tobacco smoke, support and encourage cessation attempts among smokers trying to quit.^(26,27) Furthermore, the creation of smoke free areas by health education institutes send a clear message to educators, students, patients, and clinicians about the impact and hazards of tobacco.^(26,27)

Of those that are smoking, up to 33.3% pharmacy students smoke a cigarette within 10 minutes of waking up, and this is 100% within 30 minutes (Figure 6). Early initiation of smoking at age 10 from no one smoked in applied medical science students to 22.6% pharmacy students already smoked. This is 16.7% in applied medical science to 48.7% in medical students smoked at age 16 (Figure 7). This means that a considerable number of Saudi people start smoking at a young age. The highest prevalence of early age of initiation of smoking was in China, Poland, and Zimbabwe, and 33% of ever smoker students started tobacco use before age of 10. Initiation of smoking before age of 10 was lowest in Venezuela (12.1%) and Costa Rica (10.9%).⁽³⁰⁾ A large number of students 33.3% for the medical science students up to 89.5% for pharmacy students tried cessation before (and failed). The number that received help to stop with tobacco use ranges from zero in (medical students) to 81.5% in medical science students (Figure 8). Notably, a considerable number of smokers desired to quit but were experiencing difficulties in quitting, though nearly

80% of those smokers receive help to quit smoking (Figure 8). This attributed to ineffective or inadequate tobacco cessation services, and persistent nicotine addiction.⁽²⁹⁾ All the above factors highlight obstacles in tobacco cessation among health professional students that use tobacco.

67.7% (applied medical science) to 86.3% (medical) of students agree that patient tobacco cessation depends on the health professional advice to quit smoking and tobacco use. However, 74.8% (dental) to 90.5% (pharmacy) of students agree with the statement that health professionals that use tobacco themselves will less often (or even not) advise patients to quit tobacco use (Table6). Attitudes of health professional students towards antismoking campaigns is strongly to enforce the banning of smoking in enclosed restaurants (84.5% - 97.1%) and public areas (87.1% - 100%), enforce the banning of smoking advertisements (82.6% - 94.1%), to prohibit purchasing cigarettes and tobacco by adolescence (81.1% - 94.1%), and they also recommend to a lesser extent banning of smoking in cafes: 54.9% - 80.6% (Table7, Figure 9). In Bahrain 2009 more than 90% of both medical and nursing students thought that smoking should be banned in all enclosed public places and more than 85% of all students (medical & nursing) thought that sales to adolescents should be banned.⁽⁸⁾ In Tunisia 2010 93.5% of medical students thought smoking should be banned in all enclosed public places; 83.3% thought tobacco sales to adolescents should be banned and 86.2% thought there should be a complete ban on advertising tobacco products.⁽¹⁰⁾ In Egypt 2005 91.4% of medical students thought smoking should be banned in all enclosed public places; 80.7% thought tobacco sales to adolescents should be banned and 83.9% thought there should be a complete ban on advertising tobacco products.⁽⁹⁾ So it's clear from above that health professions students either in Gulf or other Arabic countries strongly agree with banning smoking in enclosed areas, banning of smoking advertisement and prohibit selling of tobacco to adolescents.

Regarding knowledge of health professional students; the study highlight low knowledge of tobacco hazards and recording patient history specific in nursing students: 65%, 40.5% respectively (Table8, Figure 10) and defective training in nursing school on tobacco treatment (24% - 26.4%) except for nicotine therapy (68%). For training on anti-depressants therapy these figures are low in nursing as well (25.4%) to 44.6% in pharmacy students (Table9, Figure 11). In another study in U.S. about a qualitative assessment of perceptions and practices of nurse practitioners in the delivery of tobacco-use interventions and tobacco cessation services; little is

known about the tobacco intervention strategies of nurse practitioners, as well as knowledge deficit related to national guideline. These findings may be reflective of a gap in the tobacco-related curricular content of nursing programs⁽²¹⁾ Low knowledge of tobacco hazards, treatment and cessation services among nursing students is contrary to the important role of nursing in tobacco control. Nurses actively involved in directing resources and talents toward public awareness and tobacco prevention programs, formulating public policy initiatives to control youth access to tobacco, and initiating cessation programs for youth and adults. Efforts can be targeted at the schools, community, and health care system, as well as the public policy arena and media campaigns.⁽¹⁹⁾ In Bahrain 2009 and Tunisia 2010 surveys nearly, the same low percentage of medical students reported that they had ever received of formal training in their college on cessation approaches to use with their patients (37.4 %, 37.9% respectively).^(8,10) Also, in this survey the percentage that learned the importance to provide educational materials to support patients who want to quit smoking was low ranged from 20.2% in dental students to 41.3% in medical science students, although these are a bit higher for nicotine replacement therapy: 61.4% for pharmacy to 81.8% for dental students (Table9, Figure 11). The training on tobacco cessation and provision of educational materials for smokers to help them to quit smoking and treatment therapy in tobacco cessation in general need more enforcement and should be included in the school curriculum as basic courses.

Environmental tobacco smoke "second-hand smoke or negative smoking exposure" poses a danger for non smokers and as well as for smokers, with more additive hazard for smokers. The adverse effects of second-hand smoke are both immediate and long-term and are felt by both children and adults. Globally, WHO estimates that nearly 700 million, or almost half the world's children, breathe air polluted by tobacco smoke! In adults, second-hand smoke increases the risk of lung cancer by 20% to 30% and the risk of coronary heart disease by 25% to 30%. In children, exposure to second-hand smoke increases the risk of lower respiratory tract illnesses, asthma, middle-ear infection and sudden infant death syndrome.⁽³⁵⁾ The results show that exposure of non-smokers at home and outside home are lower than exposure of smokers (which can be expected as smokers will probably have other family members that smoke or people within their social network that smoke, and/or visit places where smoking is allowed). The exposure to tobacco smoke by non smokers at home is between 10.6% in dental students to 24.4% in nursing students. For outside home these figures are higher ranging from 20.4% in medical students to

42.5% in pharmacy students. Exposure of smokers to environmental tobacco smoke at home ranges from 59.9% in medical students to 91.5% among medical science students. For outside home these figures are 55.1% among nursing students and 94.5% among pharmacy students (Table10, Figure 12). In Bahrain 2009 and Tunisia 2010 the results of exposure to second hand smoke was quit similar. In Bahrain among medical students 27.9% to 33.9% of nursing students reported that they had been exposed to second hand smoke in their home in the past 7 days. Among Medical students 50.4% to 46.6% of nursing students reported that they had been exposed to second hand smoke in public places in the past 7 days.⁽⁸⁾ In Tunisia; 32.7% of medical students were exposed to second-hand smoke at home, during the past week and 51.7% of them were exposed to second-hand smoke in public places during the past week. ⁽¹⁰⁾ The results of exposure to second hand smoke in Yemen 2009 and Egypt 2005 was quit similar and higher than Bahrain and Tunisia results. In Yemen, 43.3% of medical students and 58.6% among nursing students reported that they had been

exposed to second hand smoke in their home in the past 7 days. Among 70.1% pharmacy students, 74% of medical students, and 77.5% among nursing reported second hand smoke exposure in public places.⁽¹¹⁾ In Egypt; 45.6% of medical students were exposed to second-hand smoke at home, during the past week and 78.4% of them were exposed to second-hand smoke in public places during the past week.⁽⁹⁾

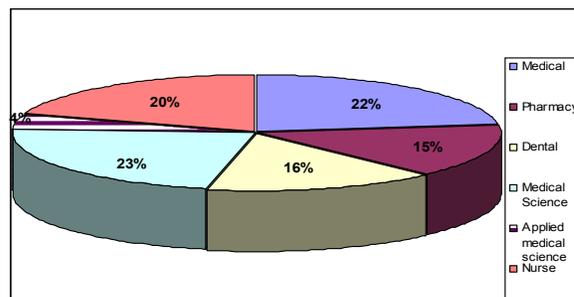


Figure 1: % of Participating Students by Health Profession

Table 2: Prevalence of Cigarettes and Shisha Smoking & Users of any Tobacco Products among Health Professional Students

	Ever Smoker	Current Smoker	Ever Shisha Smoker	Current Shisha Smoker	Ever any Tobacco user	Current any Tobacco use
Medical	40.6	8.2	26.3	6.9	55.8	17.1
Pharmacy	48.8	27.3	46.4	28.6	57.1	31.8
Dental	47.4	25.9	51.3	34.3	58.5	39.5
Medical Science	38.6	14.7	23.2	5.5	50.5	20.5
Applied medical science	17.6	2.9	15.2	2.9	29.4	5.9
Nursing	53.3	19.9	31.0	20.4	58.0	28.2

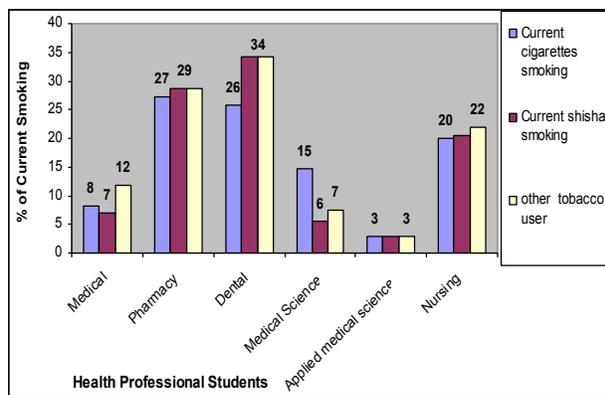


Figure 2: Health Professional Students Current Smoking

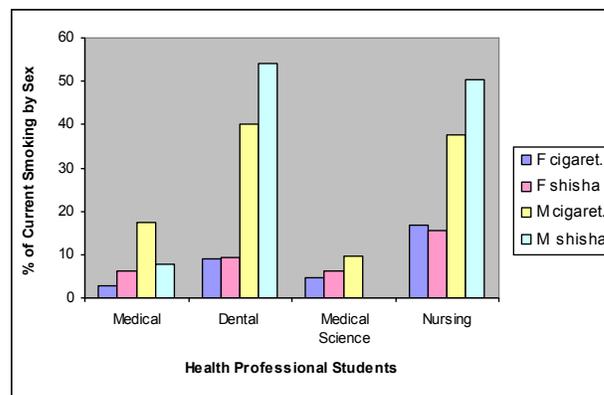


Figure 3: Health Professional Students Current Smoking by Sex

Table 3: Role of Health Professional Students(% that Agree with the statement)

	Medical	Pharmacy	Dental	Medical Science	Applied medical Science	Nursing
Role Model	85.3	84.2	83.3	83.9	94.1	83.9
Advise smokers to quit	93.3	90.2	94.5	96.3	97.1	93.7
Inform smokers about tobacco cessation	94.4	84.9	89.6	88.9	97.1	88.9

Table 4: Role of Health Professionals Schools

	Medical	Pharmacy	Dental	Medical Science	Applied medical Science	Nursing
Policies in school & clinics	63.1	55.7	68.2	53.6	44.1	64.3
Enforced school policies	85.0	95.2	86.5	98.7	92.9	98.5

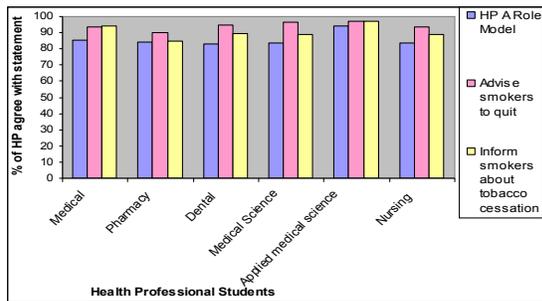


Figure 4: Role of Health Professional Students (% Agree with the Statement)

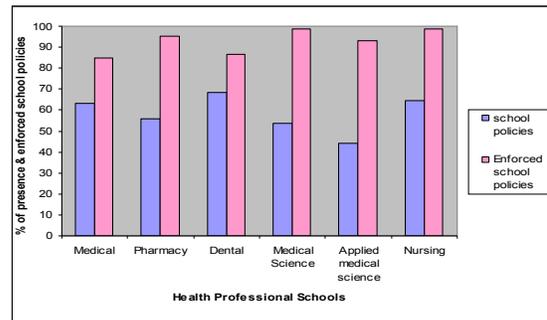


Figure 5: Role of Health Professionals Schools

Table 5: Percentage of Health Professional Students Smoking in School Building

	Medical	Pharmacy	Dental	Medical Science	Nursing
% smoke in school building	3.7	15.8	10.9	8.5	9.7
% use other tobacco in school building	7.1	-	13.0	7.6	8.7

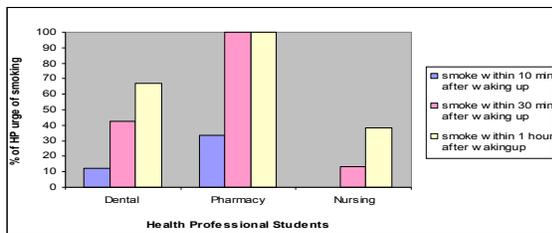


Figure 6: Health Professional Students Urge of Smoking

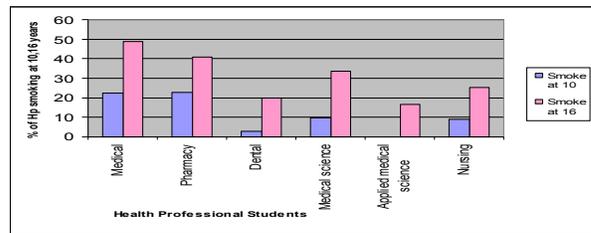


Figure 7: Health Professional Students (% Smoking at 10, 16 years)

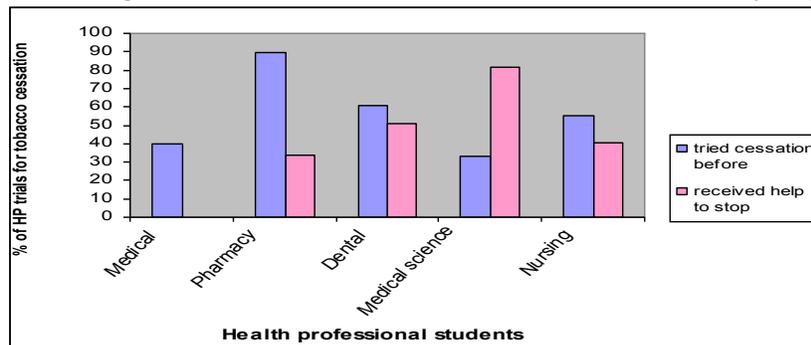


Figure 8: Health Professional Students Trials for Tobacco Cessation

Table 6: Health Professional (HP) Students Attitude about Tobacco Cessation

	Medical	Pharmacy	Dental	Medical science	Applied medical science	Nursing
Patient tobacco cessation depends on HP advise	86.3	81.0	84.0	75.0	67.6	76.4
A smoker HP less or not advise patient to quit smoking	80.5	90.5	74.8	88.2	79.4	81.2

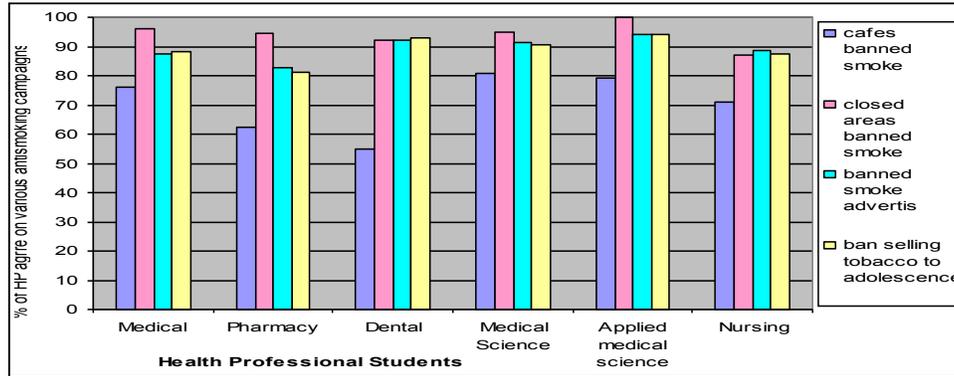


Figure 9: Health Professional Students Attitude towards Antismoking Campaigns (% Agreeing)

Table 7: Health Professional Students Attitude towards Antismoking Campaigns (% Agreeing)

	Medical	Pharmacy	Dental	Medical Science	Applied medical Science	Nursing
Banned smoking in Restaurants	93.4	97.0	86.7	95.6	97.1	84.5
Banned smoking in enclosed public places	96.2	94.7	92.1	95.0	100	87.1
Banned smoking in cafes	76.2	62.5	54.9	80.6	79.4	71.1
Banned smoking advertisements	87.6	82.6	92.0	91.4	94.1	88.7
Prohibit selling tobacco to adolescents	88.4	81.1	92.9	90.6	94.1	87.3

Table 8: Health Professional Students Knowledge of Smoking Hazards

	Medical	Pharmacy	Dental	Medical Science	Applied medical Science	Nursing
Hazards of Tobacco	84.6	81.1	85.8	74.1	79.4	65.0
Tobacco related diseases (record patient tobacco history)	46.2	47.9	72.6	52.7	35.3	40.5

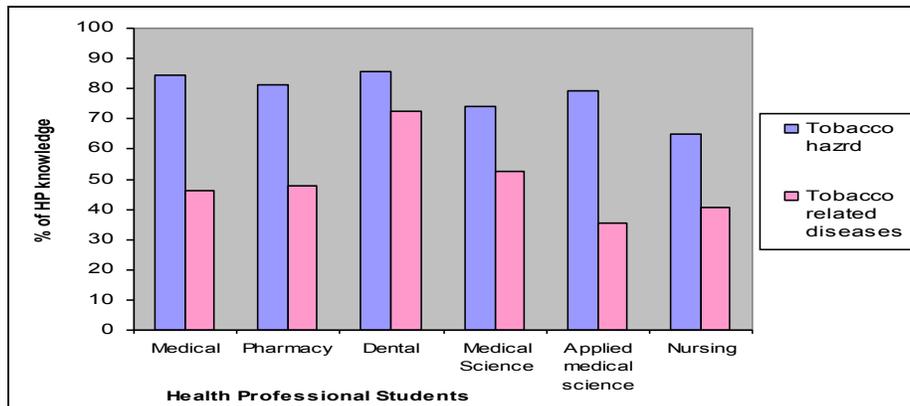


Figure 10: Health Professional Students Knowledge of Smoking Hazards

Table 9: Health Professional Students Training on Treatment of Tobacco Users

	Medical	Pharmacy	Dental	Medical Science	Applied medical Science	Nursing
Tobacco Cessation	21.8	30.5	19.3	35.2	29.4	24.0
Educational materials	24.8	37.9	20.2	41.3	35.3	26.8
Nicotine replacement therapy	69.3	61.4	81.8	66.1	79.4	68.1
Anti-depressant therapy	31.6	44.6	32.2	37.0	38.2	25.4

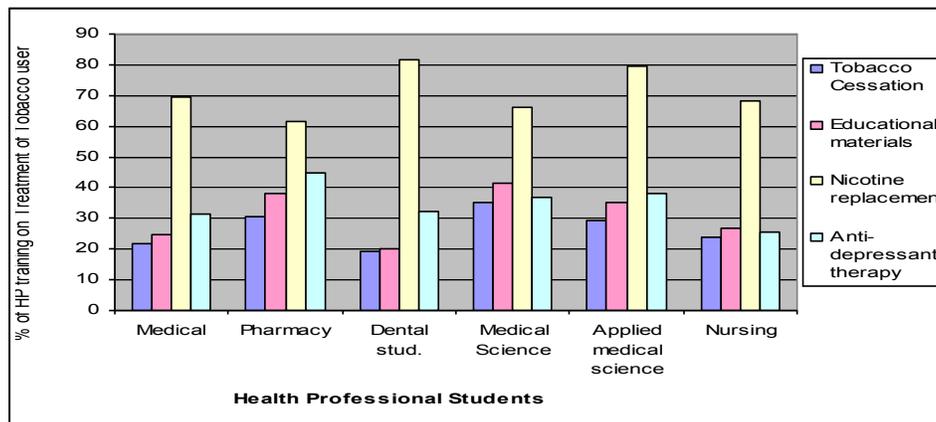


Figure 11: Health Professional Students Training on Treatment of Tobacco User

Table 10: Health Professional Students Negative Smoking Exposure (Exposed to someone smoking in their presence at home and outside their home)

A. Exposed to smoking at home	Medical	Pharmacy	Dental	Medical Science	Nursing
% of exposed (non - smokers)	16.3	21.5	10.6	21.5	24.4
% of exposed who smoke cigarettes	56.9	82.9	69.2	91.5	63.1
% of exposed	29.0	33.6	37.2	40.6	39.8
B. Exposed to smoking out-home	Medical	Pharmacy	Dental	Medical Science	Nursing
% of exposed (non - smokers)	20.4	42.5	34.0	34.0	27.8
% of exposed who smoke cigarettes	61.7	94.5	94.3	83.1	55.1
% of exposed	31.5	58.0	61.4	46.3	39.9

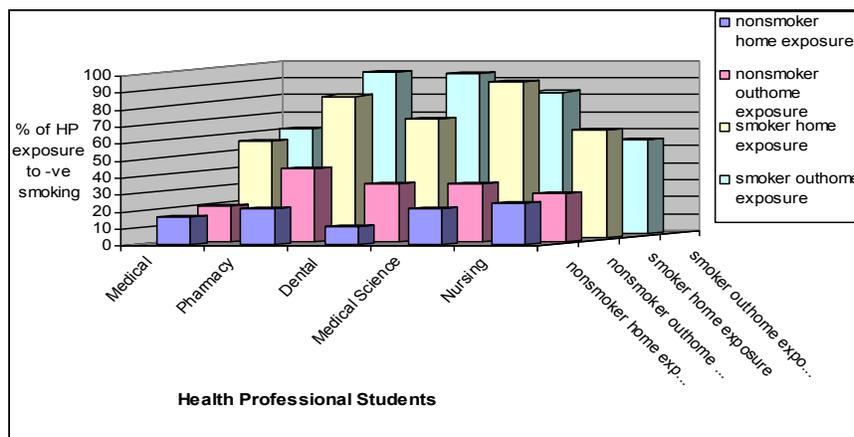


Figure 12: Health Professional Students Negative Smoking Exposure (Exposed to someone smoking in their presence at home and outside home)

Conclusion

The survey concluded that tobacco prevalence, especially cigarettes and shisha, is higher among dental and pharmacy students, followed by nursing, medical science and medical students, and the lowest prevalence is found in applied medical students. The prevalence of cigarettes and shisha smoking is considerably higher among males compared to females.

Health professional students roles are considered to advise the patients that smoke to stop smoking, followed by informing smokers about tobacco cessation and lastly to be a role model for their patients. The role of schools of health professionals is to encourage tobacco cessation through setting rules and policies prohibiting smoking in schools. However, the percentage of enforcing schools policies was high, but the actual presence of these policies was much lower. Efforts should be undertaken to implement the policies that are present.

Barriers for health professional student's with respect to tobacco cessation are the considerable numbers of students that already smoke at a young age, the high number of smokers that start smoking soon after waking up, the large number that tried cessation before (and failed) and the fact that quite number of students did not receive help to stop tobacco use. Adding that Health professional knowledge of tobacco hazards was not as high as expected, and it was lower in nursing students. Also training of health professional students was lower than expected – all below 50% except for nicotine replacement therapy, which may explain why their knowledge was lower. It can therefore be concluded that health professional students need to learn and know more about smoking hazards and tobacco cessation and how to quit smoking through more training sessions specifically for nursing and medical students because of their important role in tobacco cessation, which should be incorporated in school curriculum.

Regarding the attitude of health professional students towards tobacco cessation, more than two thirds agreed that patient tobacco cessation depends on the advice of the physician, and more than three quarters regard the smoking behavior of health professionals themselves a barrier for advising and informing their patients about tobacco cessation. Health professional students also agreed on antismoking campaign through banning smoking in restaurants and enclosed public areas, as well as banning smoking advertisements and prohibition of purchasing tobacco to adolescence (all more than 81%) and to a lesser extent banning of smoking in cafes.

The exposure of health professional students that don't smoke to environmental tobacco smoke, i.e. "negative smoking exposure" at home and outside home is lower than that of health professional students that smoke. For the non-smokers, exposure at home is generally lower compared to outside home, while for the smokers this more similar.

Recommendations

All countries in the Gulf Region must adopt strategies to avoid the increase of tobacco consumption among the public, especially among health professional students and to facilitate decreasing in tobacco use. This should be directed to Saudi Arabia as one country in the Gulf region with high tobacco prevalence and consumption. The following recommendations found useful within the context:

1. Increase information and knowledge about the hazards of smoking and all forms of tobacco use among the public and health professional students to build a negative attitude towards smoking and tobacco use.
2. Direct health education messages and awareness to prohibit and prevent all forms of tobacco use for health professionals (and the public) as health professionals use both cigarettes and other forms of tobacco on an equal basis.
3. Stigmatize female use of tobacco to prevent and prohibit female use of all forms of tobacco as female smoking nearly one third from male smoking.
4. Prevent tobacco use and smoking of health professionals because they act as a role model and have great influence on their patients, especially the young patients.
5. Enhance the role of physicians, nurses and health professionals in tobacco cessation programs as they act as a role model, they advise patients that smoke to quit and inform them how to stop tobacco use.
6. Prevent tobacco use especially in the health professional's school environment through the following: Enact and set legislations, policies and rules prohibiting tobacco use among schools of health professionals, and enforce use of these rules, add health education, teaching, learning materials and schools awareness campaigns that directed on the harmful effects of smoking, conduct training sessions, activities and programs to health professionals for prevention of smoking initiation and tobacco use, design and implement tobacco cessation programs in health professional's schools; which must be integrated in the school curriculum and should not be done on an ad hoc basis and include nicotine replacement therapy and anti-depressants therapy and new drugs help in

tobacco cessation programs for health professionals.

7. Formulate policies and strategies to restrict or ban smoking and tobacco use through banning of tobacco advertisements, banning purchasing tobacco to adolescents, prohibition of smoking in schools; governments buildings and public areas, such as; restaurants and cafes.
8. Cut off the urge of smoking and desperate desire of smoking in smokers through delaying age of smoking initiation.
9. Decrease when possible the harmful effect of negative smoking exposure indoors and outdoors for smokers and non smokers.

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