



***PREDICTORS OF CIGARETTE AND WATER PIPE SMOKING
BEHAVIOURS AMONG FEMALE SCHOOL STUDENTS AGED 12 TO 19
IN JEDDAH, SAUDI ARABIA***

ALOTAIBI, AMANI AWWADH F

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By

ALOTAIBI, AMANI AWWADH F

**Thesis Submitted to the School of Graduate Studies, Universiti Putra Malaysia, in
Fulfilment of the Requirements for the Degree of Doctor of Philosophy**

April 2016



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DEDICATION

This thesis lovingly dedicated to my mother, Fatimah Mohammad Al-Shuaibi who has always been my role-model for hard work, persistence and personal sacrifices, and who instilled in me the inspiration to set high goals and the confidence to achieve them.



Abstract of thesis presented to the Senate of Universiti Putra Malaysia in fulfilment of the requirement for the degree of Doctor of Philosophy

**PREDICTORS OF CIGARETTE AND WATER PIPE SMOKING
BEHAVIOURS AMONG FEMALE SCHOOL STUDENTS
AGED 12-19 YEARS IN JEDDAH, SAUDI ARABIA**

By

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April 2016

**Chairman : Associate Professor Dato' Faisal Ibrahim, MPH, MPH
Faculty : Medicine and Health Sciences**

Water pipe smoking is an increasing public health concern, with supportive global reports of higher prevalence than cigarette among female school students particularly in the Middle East countries. The objective of this study was to determine the prevalence and predictors of cigarette and water pipe smoking behaviours among female school students (aged 12-19 years) in Jeddah, Saudi Arabia.

A cross-sectional study was carried out among Saudi female school students aged 12 to 19 years in Jeddah. A multistage probability proportionate to size sampling method was applied. Sample size (N=5,150) was calculated using a formula for testing hypothesis of two population proportions. The data was collected using validated self-administrated questionnaire that requiring information on smoking behaviours, as well as selected demographic, social, attitudinal/ environmental and psychological variables. Data was analysed using SPSS version 21. Pearson's chi-square test was used to determine the differences in the prevalence of smoking and factors. Multivariate logistic regression was used for determining predictors of smoking behaviours.

The prevalence of ever water pipe smoking was 36.2% while cigarette smoking prevalence was 30.9%. The prevalence of current water pipe smoking was about double that of cigarette smoking (15.8% and 9.1% respectively). Bivariate analysis showed that smoking prevalence was significantly ($P<0.05$) higher among private school students than public school students, for current cigarette smoking (35.3% and 28.3% respectively) and for ever water pipe smoking (41.1% and 35.2% respectively). The multivariate analysis showed that, close friend's smoking, number of smoking friends, accessibility to smoking and self-efficacy to resist smoking were significant predictors for both ever and current cigarette/ water pipe smoking behaviours among the respondents. Among the predictors, close friend's smoking was the strongest predictor for ever cigarette smoking (AOR=1.73, 95%CI:1.39-2.15), while sister's smoking was the strongest predictor for ever water pipe smoking (AOR=3.24, 95%CI:2.47-4.25) among the respondents. Father's smoking, brother's smoking and

perceived difficulty to quit smoking were significant predictors of respondents' ever cigarette and water pipe smoking, but not with current smoking behaviours. Exposure to second hand smoking in homes was significant predictor of current cigarette smoking (AOR=1.42, 95%CI:1.04-1.93) while exposure to second hand smoking in public places was predictor of current water pipe smoking (AOR=1.47, 95%CI:1.12-1.92). Student allowance and exposure to pro-smoking messages in stores were significantly predicted cigarette smoking behaviour while parents' educational levels, family structure, perceived prevalence of smoking, perceived parents' disapproval of smoking, exposure to smoking control activities, depression and stress were significant predictors of respondents' water pipe smoking behaviour.

In conclusion, ever water pipe smoking (36.2%) and cigarette smoking behaviours (30.9%) are highly prevalent among Saudi female school students in Jeddah. The findings of the predictors highlighted the need for development and enhancement of more effective anti-smoking intervention programs for the female school students in Jeddah to help them change their positive normative perceptions and attitudes towards smoking and to improve their smoking refusal skills.

Keywords: Female School Student, Age 12-19 Years, Jeddah, Cigarette Smoking, Water pipe Smoking, Predictors

Abstrak tesis yang dikemukakan kepada Senat Universiti Putra Malaysia sebagai memenuhi keperluan untuk ijazah Doktor Falsafah

PERAMAL TINGKAHLAKU MENGHISAP ROKOK DAN SHISHA “WATER PIPE” DI KALANGAN PELAJAR SEKOLAH PEREMPUAN, BERUMUR 12-19 TAHUN DI JEDDAH, ARAB SAUDI

Oleh

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April 2016

Pengerusi : Prof. Madya Dato' Faisal Ibrahim, MPH, MPHM
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Merokok Menghisap SHISHA “Water-pipe” merupakan masalah kesihatan awam yang semakin membimbangkan. Laporan global menkankan bahawa kelaziman menghisap SHISHA lebih tinggi daripada menghisap rokok di kalangan pelajar sekolah perempuan terutamanya di negara-negara Timur Tengah. Objektif kajian ini adalah untuk menentukan kadar kelaziman dan peramal tingkahlaku menghisap rokok dan SHISHA “*water-pipe*” di kalangan pelajar sekolah perempuan (berusia 12-19 tahun) di Jeddah, Arab Saudi.

Satu kajian keratan rentas dikalangan pelajar sekolah permepuan berumur 12 hingga 19 tahun di bandaraya Jeddah, Kaedah persampilan secara kebarangkalian yang setanding dengan saiz telah digunakan. Size persampelan ($n = 5,150$) telah dikira dengan menggunakan formula bagi pengujian hipotesis dua perkadaran populasi dan dijalankan. Pengumpulan data dilakukan dengan menggunakan borang soal selidik yang disahkan, yang merangkumi maklumat mengenai tingkahlaku menghisap rokok, serta pembulehubah demografi, sosial, pembolehubah sikap / persekitaran dan psikologi. Data di analisis menggunakan SPSS versi 21. Ujian “Pearson’s chi-square” telah digunakan untuk menentukan perbezaan kelaziman bagi penggunaan tembakau dan faktor-faktornya. Pelbagai ujian regresi logistik multivariat telah digunakan untuk menentukan peramal penggunaan tembakau.

Kadar Kelaziman dikalangan yang pernah menghisap SHIHSA ialah 36.2%, manakala menghisap adalah 30.9%. Kelaziman menghisap SHISHA semasa adalah dua kali ganda lebih tinggi daripada kelaziman menghisap rokok (masing-masing 15.8% dan 9.1%). Analisis bivariat menunjukkan bahawa perokok adalah jauh lebih tinggi ($P < 0.05$) di kalangan pelajar sekolah swasta berbanding pelajar sekolah awam, pagi penghisap rokok semasa (35.3% dan 28.3%), dan pernah menghisap SHISHA (41.1% dan 35.2%). Keputusan analisis multivariat menunjukkan bahawa, kawan rapa yang merokok, bilangan kawan yang merokok, akses kepada merokok, dan keberkesanan menahan diri dari merokok adalah peramal yang signifikan bagi tingkah laku bagi

kedua-dua responden yang pernah dan prokok semasa (Rokok dan SHISHA). Antara peramal, kawan rapat yang merokok adalah peramal yang paling kuat bagi tingkahlaku “pernah merokok” (AOR=1.73, 95%CI:1.39-2.15), manakala “kakak yang merokok” adalah peramal yang paling kuat bagi responden yang pernah menghisap SHISHA (AOR=3.24, 95%CI:2.47-4.25). Bapa dan abang yang merokok, serta persepsi kesukaran berhenti merokok adalah peramal yang ketara terhadap responden yang pernah menghisap SHISHA dan rokok tetapi bukan terhadap penghisap SHISHA semasa. Pendedahan kepada asap rokok “second hand smoking” di rumah adalah peramal yang signifikan kepada perokok semasa (AOR=1.42, 95%CI:1.04-1.93) manakala pendedahan kepada asap rokok di tempat awam adalah peramal terhadap tingkah laku penghisap SHISHA semasa (AOR=1.47, 95%CI:1.12-1.92). Elaun pelajar dan pendedahan kepada mesej pro-merokok di kedai-kedai telah dengan ketara meramalkan tingkah laku merokok, manakala tahap pendidikan ibu bapa, struktur keluarga, kelaziman tanggapan merokok, penolakan merokok oleh ibu bapa, pendedahan kepada aktiviti kawalan merokok, kemurungan dan menghadapi tekanan, adalah peramal yang signifikan kepada tingkah laku responden terhadap menghisap SHISHA dan rokok.

Kesimpulannya, kelaziman terhadap tingkahlaku pernah menghisap SHISHA dan rokok di kalangan pelajar sekolah perempuan Saudi di Jeddah adalah tinggi (36.2% dan 30.9%). Penemuan peramal ini menekankan bahawa perhatian perlu di tumpu terhadap pembangunan dan penambahbaikan program intervensi anti-merokok untuk pelajar-pelajar sekolah perempuan di Jeddah bagi membantu pencapaian perubahan persepsi normatif dan sikap terhadap merokok serta meningkatkan kemahiran mereka menentang keinginan merokok.

Kata kunci: pelajar sekolah perempuan, berumur 12-19 tahun, Jeddah, merokok, Menghisap SHISHA, peramal

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I certify that a Thesis Examination Committee has met on 20 April 2016 to conduct the final examination of Alotaibi, Amani Awwadh F on her thesis entitled "Predictors of Cigarette and Water pipe Smoking Behaviours among Female School Students aged 12 to 19 in Jeddah, Saudi Arabia" in accordance with the Universities and University Colleges Act 1971 and the Constitution of the Universiti Putra Malaysia [P.U.(A) 106] 15 March 1998. The Committee recommends that the student be awarded the Doctor of Philosophy.

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LIST OF ABBREVIATIONS

AOR	Adjusted Odd Ratio
CDC	Centers for Disease Control and Prevention
EMR	Eastern Mediterranean Region
FCTC	Framework Convention on Tobacco Control
GYTS	Global Youth Tobacco Survey
KSA	Kingdom of Saudi Arabia
NYTS	National Youth Tobacco Survey
OR	Odd Ratio
SHS	Second hand smoking
SR	Saudi Riyal
UK	The United Kingdom
USA	The United States of America
WHO	World Health Organisation



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CHAPTER 1

INTRODUCTION

1.1 Background

Smoking still remains one of the leading global health risks for disease and premature death (Eriksen *et al.*, 2012). Globally, smoking causes 71% of lung cancer, 42% of chronic respiratory disease and 10% of cardiovascular disease (Alwan, 2011). In 2011, there were nearly six million tobacco smoking related deaths globally, with 80% of these premature deaths being in low and middle income countries. Tobacco smoking has been globally known as a male's problem (Eriksen *et al.*, 2012). Worldwide, it is estimated that men smoke nearly four times as much as women (48% vs. 12%), however, this situation is gradually changing (Corrao *et al.*, 2000). Smoking prevalence among males has peaked and are decreasing globally while smoking prevalence among females is increasing rapidly (Samet & Yoon, 2010).

There is increasing evidence showed that tobacco companies are concentrating their efforts on promoting tobacco smoking among young females in developing countries using seductive but false images of vitality, slimness, modernity, liberation, and freedom (Petticrew *et al.*, 2015; WHO, 2013a). The results of the worldwide Global Youth Tobacco Survey (GYTS) highlights the increasing of smoking epidemic among female school students (Warren *et al.*, 2008). It reported that there was no difference in smoking prevalence between male and female school students in 58% of the 165 countries surveyed, and 3% of the countries showed higher prevalence of smoking among female school students than males. In addition, about half of the countries indicated greater prevalence of smoking among female school students than that of adult females (Warren *et al.*, 2009).

Although the use of various tobacco products varies from one region of the world to the other, the current most common tobacco products used globally are cigarette smoking and water pipe smoking (Eriksen *et al.*, 2015). Manufactured cigarette represents the predominant form of tobacco smoking among different groups, globally (Eriksen *et al.*, 2012). However, water pipe smoking (also named shisha or hookah) represents both a modern revival of an old public health threat and the emergence of a new tobacco smoking epidemic (Maziak, 2010; Wasim. Maziak, Kenneth D. Ward, *et al.*, 2004). Marketing strategies have made water pipe smoking very appealing for school students around the world, as being less harmful, and a good alternative, to cigarette smoking (Akl *et al.*, 2013; Akl *et al.*, 2011). There is no such thing as a 'safe tobacco product'. Water pipe smoke contains at least as harmful toxins as cigarette smoke (Cobb *et al.*, 2011).

A global estimation showed that 14% of female school students (aged 13 to 15) currently use tobacco products. Overall, 7% of them smoke cigarettes and 8% use other

tobacco products including water pipe smoking (Warren *et al.*, 2009). The prevalence of smoking among female school students varies across countries depending on availability, affordability of tobacco products and cultural norms (GYTSCG, 2002). Cigarette smoking is significantly higher than water pipe smoking among female school students in European (17% vs. 8%) and American regions (15% vs. 7%). However, the use of water pipe smoking is significantly higher than cigarette smoking among female school students in the African (11% vs. 5%) and the Eastern Mediterranean regions (9% vs. 2%) (Warren *et al.*, 2008).

Smoking among female school students in the Arab countries is an important concern. The accruing social cultural changes in these countries have contributed to an increased acceptance of water pipe smoking behaviour over cigarette smoking behaviour for females particularly among the younger generations (Khalil *et al.*, 2013; Akl *et al.*, 2011). This notion is supported by the global data of Tobacco Surveillance System which showed that the prevalence of cigarette smoking among female school students in Arabic countries is generally lower than 8%. However, very high prevalence of other tobacco smoking product was found among female school students in Lebanon (35.7%), United Arab Emirates (24.7%) and Jordan (23.5%) (Warren *et al.*, 2009).

Although Saudi Arabia is a socially and religiously conservative country, it has been ranked among the top ten tobacco importer countries. Each year, about 15 billion cigarettes are smoked by Saudi citizens, with higher tobacco consumption being among people from the western region of the country (including Jeddah) (Al-Munif, 2009; Bassiony, 2009). Overall, the prevalence of tobacco smoking among the Saudi population ranges from 2.4 to 52.9% (median of 17.5%) (Bassiony, 2009). The rates of smoking among female school students in Saudi Arabia are quite alarming (Al-Lehiany & Stanley, 2009). According to the Saudi-GYTS (2010) report, 9.1% of female school students aged 13-15 years were current tobacco users, with a higher prevalence of water pipe smoking than cigarette smoking (7.1% vs. 5%) (Basahi, 2010).

There are some standard theories that have been used to explain ever smoking behaviour (lifetime smoking) and current smoking behaviour (smoking in the last 30 days) among school students (Collins & Ellickson, 2004). They include Theory of Planned Behaviour (TPB) (Ajzen & Fishbein, 1980), Social Learning Theory (SLT) (Bandura & McClelland, 1977), Social Attachment Theory (SAT), (Elliott *et al.*, 1985), and Problem Behaviour Theory (PBT) (Jessor & Jessor, 1977). Social psychologists have documented the need to integrate the concepts across theories into better understanding of adolescent smoking behaviour (Collins & Ellickson, 2004; Petraitis *et al.*, 1995). As a result of these understandings, smoking behaviour among school students has become preventable, and intervention that has been directed by theory based studies has shown positive results (Sussman, 2002).

1.2 Problem statement

It is currently estimated that there are about 250 million daily female smokers around the world, with 22% and 9% being in developed and developing countries respectively. If no effective actions are taken to control this current trend, it is estimated that, by

2030, about one fifth of the global female population will consist of smokers, up from 12% in 2005 (Greaves, 2007). Female smokers have higher risks of infertility and delays in conceiving than non-smokers. Smoking tobacco during pregnancy adversely affects fetal development, increases risks of premature delivery, stillbirth and newborn death. Smoking has been also found to increase women's risk for breast and cervical cancer (Gaudet *et al.*, 2013; Satcher, 2001). Nevertheless, studies on the female tobacco smoking epidemic, especially in developing countries, are not yet visible compared with male epidemiological statistics. Accordingly, tobacco control programs have remained mainly gender-blind (Samet & Yoon, 2010).

Given the evidence that smoking behaviours among Saudi females are mostly established during the second decade of life, smoking among female school students is clearly a critical public health problem in Saudi Arabia (Abdulghani *et al.*, 2013; Koura *et al.*, 2011). Female school students are the most vulnerable group to become tobacco smokers, as they are susceptible to various personal, social and environmental influences that make them an easy target for tobacco industries, and once 'hooked', they will possibly be unfailing steady consumers through their lives (WHO, 2013a).

Evidence indicates the alarming increase of water pipe smoking among female school students around the world, particularly in Middle Eastern countries where the prevalence of current water pipe smoking behaviour among female school students ranged from 9 to 25% (Akl *et al.*, 2011). Water pipe smoking presents a challenge and threat to public health on an international scale, as it is not clearly covered by tobacco control legislations (O'Connor, 2012; Maziak, 2010). The WHO reported that research on water pipe smoking is lacking. Relative to cigarette smoking, water pipe smoking is suggested to have unique characteristics and determinants, and needs specific research (WHO, 2005).

The Saudi Arabian culture has built upon Islamic Shari'ah rules, in which tobacco smoking behaviours in general is prohibited (based on Islamic *Fatwa*) for both genders. Nevertheless, it is culturally deemed more unacceptable social behaviour for females. Despite the fact, every year more than 4,700 people in Saudi Arabia are killed by tobacco smoking related disease, while 28,400 female school students smoke cigarettes each day, which reveals the sign of an on-going serious public health concern (Eriksen *et al.*, 2015). A review of 34 tobacco smoking related studies conducted in Saudi Arabia between 1987 and 2008 showed that smoking behaviour is firmly established among different subgroups of the population in Saudi Arabia. However, most of these studies were conducted among male students, and come from the central region of the country. There is lack of data on the prevalence and predictors of cigarette and water pipe smoking behaviours among female school students in Saudi Arabia (Bassiony, 2009).

1.3 Significance of the study

Results from this study will increase the knowledge of prevalence and factors associated to smoking behaviours, especially water pipe smoking, among Saudi female

school students. The findings of factors associated will also provide information for preparation of intervention programs. The findings from this research will also add to the much needed data base to reduce the information gaps.

1.4 Research questions

1. What is the prevalence of ever and current cigarette/ water pipe smoking behaviours among female school students (aged 12-19 years) in Jeddah, Saudi Arabia?
2. What are the characteristics of ever and current cigarette smoking behaviours among the respondents?
3. What are the characteristics of ever and current water pipe smoking behaviours among the respondents?
4. Is there an association between the demographic characteristics, social factors, attitudinal/ environmental factors and psychological with prevalence of ever and current cigarette smoking behaviours among the respondents?
5. Is there an association between the demographic characteristics, social factors, attitudinal/ environmental factors and psychological factors with prevalence of ever and current water pipe smoking behaviours among the respondents?
6. Do the demographic characteristics, social factors, attitudinal/ environmental factors and psychosocial factors significantly predict ever and current cigarette smoking behaviours of the respondents?
7. Do the demographic characteristics, social factors, attitudinal/ environmental factors and psychosocial factors significantly predict ever and current water pipe smoking behaviours of the respondents?

1.5 Study objectives

1.5.1 General objective

To determine the prevalence and predictors of cigarette smoking and water pipe smoking behaviours among female school students (aged 12 to 19 years) in Jeddah, Saudi Arabia.

1.5.2 Specific objectives

1. To determine the demographic characteristics, social factors, attitudinal/ environmental factors and psychological factors of the respondents.
2. To determine the prevalence of ever and current cigarette smoking and water pipe smoking behaviours among the respondents.
3. To determine the characteristics of ever and current cigarette smoking behaviours among the respondents.
4. To determine the characteristics of ever and current water pipe smoking behaviours among the respondents.
5. To determine the association between the demographic characteristics, social factors, attitudinal/ environmental factors and psychological factors with

- prevalence of ever and current cigarette smoking behaviours among the respondents.
6. To determine the association between the demographic characteristics, social factors, attitudinal/ environmental factors and psychological factors with prevalence of ever and current water pipe smoking behaviours among the respondents.
 7. To determine the predictors of ever and current cigarette smoking behaviours among the respondents.
 8. To determine the predictors of ever and current water pipe smoking behaviours among the respondents.

1.6 Hypothesis

1. There is a significant association between ever and current cigarette smoking behaviours and the demographic characteristics, social factors, attitudinal/ environmental factors and psychological factors among the respondents.
2. There is a significant association between ever and current water pipe smoking behaviours and the demographic characteristics, social factors, attitudinal/ environmental factors and psychological factors among the respondents.
3. The demographic characteristics, social factors, attitudinal/ environmental factors and psychological factors are significant predictors of ever and current cigarette smoking behaviours among the respondents.
4. The demographic characteristics, social factors, attitudinal/ environmental factors and psychological factors are significant predictors of ever and current water pipes smoking behaviour among the respondents.

REFERENCES

- Abar, C. C., Jackson, K. M., Colby, S. M., Barnett, N. P. (2014). Common and unique parenting predictors of adolescent tobacco and alcohol use. *Addictive Behaviors*.
- Abdalla, A. M., Al-Kaabba, A. F., Saeed, A. A., Abdulrahman, B. M., Raat, H. (2007). Gender differences in smoking behavior among adolescents in Saudi Arabia. *Saudi Medical Journal*, 28(7), 1102-1108.
- Abdalla, A. M., Saeed, A. A., Abdulrahman, B. M., Al-Kaabba, A. F., Raat, H. (2009). Correlates of ever-smoking habit among adolescents in Tabuk, Saudi Arabia. *Eastern Mediterranean Health Journal*, 15(4), 983-992.
- Abdulghani, H. M., Alrowais, N. A., Alhaqwi, A. I., Alrasheedi, A., Al-Zahir, M., et al. (2013). Cigarette smoking among female students in five medical and nonmedical colleges. *International Journal Of General Medicine*, 6, 719.
- Aday, L. A., Cornelius, L. J. (2011). *Designing and Conducting Health Surveys: A Comprehensive Guide*.: John Wiley & Sons.
- Affifi, R., Khalil, J., Fouad, F., Hammal, F., Jarallah, Y., et al. (2013). Social norms and attitudes linked to water pipe use in the Eastern Mediterranean Region. *Social Science and Medicine*, 98, 125-134.
- Affifi, R. A., Yeretzian, J. S., Rouhana, A., Nehlawi, M. T., Mack, A. (2009). Neighbourhood influences on narghile smoking among youth in Beirut. *The European Journal of Public Health*, 20(4), 456-462.
- Agaku, I. T., Ayo-Yusuf, O. A., Vardavas, C. I., Connolly, G. (2014). Predictors and Patterns of Cigarette and Smokeless Tobacco Use Among Adolescents in 32 Countries, 2007–2011. *Journal of Adolescent Health*, 54(1), 47-53.
- Ajzen, I. (1991). The theory of planned behavior. *Organizational Behavior and Human Decision Processes*, 50(2), 179-211.
- Ajzen, I. (2002). Perceived behavioral control, self-efficacy, locus of control, and the theory of planned behavior. *Journal of Applied Social Psychology*, 32(4), 665–683.
- Ajzen, I., Fishbein, M. (1980). Understanding attitudes and predicting social. *Behaviour*. Englewood Cliffs, NJ: Prentice-Hall.
- Akl, E. A., Gaddam, S., Gunukula, S. K., Honeine, R., Jaoude, P. A., et al. (2010). The effects of waterpipe tobacco smoking on health outcomes: a systematic review. *International Journal of Epidemiology*, 39(3), 834-857.
- Akl, E. A., Gunukula, S. K., Aleem, S., Obeid, R., Jaoude, P. A., et al. (2011). The prevalence of waterpipe tobacco smoking among the general and specific populations: a systematic review. *BMC Public Health*, 11(1), 3-27.

- Akl, E. A., Jawad, M., Lam, W. Y., Obeid, R., Irani, J. (2013). Motives, beliefs and attitudes towards waterpipe tobacco smoking: a systematic review. *Harm Reduction Journal*, 10(1), 1-9.
- Al-Haddad, N., Al-Habeeb, T., Abdelgadir, M., Al-Ghamdy, Y., Qureshi, N. (2003). Smoking patterns among primary health care attendees, Al-Qassim region, Saudi Arabia. *Eastern Mediterranean Health Journal*, 9(5-6), 911-922.
- Al-Lawati, J. A., Muula, A. S., Hilmi, S. A., Rudatsikira, E. (2008). Prevalence and determinants of waterpipe tobacco use among adolescents in Oman. *Sultan Qaboos University Medical Journal*, 8(1), 37-43.
- Al-Lehiany, O., Stanley, D. (2009). Smoking cessation program targeting adolescents: Saudi Arabia. *Journal of Smoking Cessation*, 4(1), 3-9.
- Al-Mendalawi, M. D. (2012). Smoking habits among medical students in Western Saudi Arabia. *Saudi Medical Journal*, 33(3), 333-330.
- Al-Mohrej, O. A., AlTraif, S. I., Tamim, H. M., Fakhoury, H. (2014). Will any future increase in cigarette price reduce smoking in Saudi Arabia? *Annals of Thoracic Medicine*, 9(3), 154.
- Al-Mulla, A., Abdou Helmy, S., Al-Lawati, J., Al Nasser, S., Ali Abdel Rahman, S., et al. (2008). Prevalence of Tobacco Use Among Students Aged 13-15 Years in Health Ministers' Council/Gulf Cooperation Council Member States, 2001-2004. *Journal of School Health*, 78(6), 337-343.
- Al-Munif, M. (2009). Report on Tobacco Control Program of Ministry of Health in Saudi Arabia *Ministry of Health Tobacco Control Program*.
- Al-Sabaie, A. (1989). Psychiatry in Saudi Arabia: Cultural perspectives. *Transcultural Psychiatric Research Review*.
- Al-wadeai, A., Bashai, J., Al-ressais, E., Al-ali, A., Al-nuwaiser, S. (2013). Tobacco Control Programs and Legislations in Saudi Arabia (Arabic). Ministry of Health Tobacco Control Program, Saudi Arabia.
- Al-Zalabani, A. H., Amer, S. M., Kasim, K. A., Alqabshawi, R. I., Abdallah, A. R. (2015). Second-Hand Smoking among Intermediate and Secondary School Students in Madinah, Saudi Arabia. *BioMed Research International*, 2015.
- Al Agili, D. E., Park, H.-K. (2012). The prevalence and determinants of tobacco use among adolescents in Saudi Arabia. *Journal of School Health*, 82(3), 131-138.
- Al Gelban, K. S. (2009). Prevalence of psychological symptoms in Saudi secondary school girls in Abha, Saudi Arabia. *Annals of Saudi Medicine*, 29(4), 275.
- Al Ghobain, M., Al Moamary, M., Al Shehri, S., Al-Hajjaj, M. (2011). Prevalence and characteristics of cigarette smoking among 16 to 18 years old boys and girls in Saudi Arabia. *Annals of Thoracic Medicine*, 6(3), 137-140.

- Al Moamary, M., Al Ghobain, M., Al Shehri, S., Alfayez, A., Gasmelseed, A., et al. (2012). The prevalence and characteristics of water-pipe smoking among high school students in Saudi Arabia. *Journal of Infection And Public Health*, 5(2), 159-168.
- Al Moamary, M., Al Ghobain, M., Al Shehri, S., Gasmelseed, A., Al-Hajjaj, M. (2012). Predicting tobacco use among high school students by using the global youth tobacco survey in Riyadh, Saudi Arabia. *Annals of Thoracic Medicine*, 7(3), 122.
- Alamri, A. S., Cristea, A. I., Al-Zaidi, M. (2014). Saudi Arabian Cultural Factors and Personalised Elearning. *EDULEARN14 Proceedings*, 7114-7121.
- Alwan, A. (2011). Global status report on noncommunicable diseases 2010: World Health Organization (WHO).
- Alzyoud, S., Kheirallah, K. A., Ward, K. D., Al-Shdayfat, N. M., Alzyoud, A. A. (2014). Association of Religious Commitment and Tobacco Use Among Muslim Adolescents. *Journal of Religion And Health*, 1-11.
- Alzyoud, S., Weglicki, L. S., Kheirallah, K. A., Haddad, L., Alhawamdeh, K. A. (2013). Waterpipe Smoking among Middle and High School Jordanian Students: Patterns and Predictors. *International Journal Of Environmental Research And Public Health*, 10(12), 7068-7082.
- Amin, T. T., Amr, M. A., Zaza, B. O., Suleman, W. (2010a). Harm perception, attitudes and predictors of waterpipe (shisha) smoking among secondary school adolescents in Al-Hassa, Saudi Arabia. *Asian Pacific Journal of Cancer Prevention: APJCP*, 11(2), 293.
- Amin, T. T., Amr, M. A., Zaza, B. O., Suleman, W. (2010b). Harm perception, attitudes and predictors of waterpipe (shisha) smoking among secondary school adolescents in Al-Hassa, Saudi Arabia. *Asian Pacific Journal of Cancer Prevention*, 11(2).
- Amin, T. T., Amr, M. A. M., Zaza, B. O. (2011). Psychosocial predictors of smoking among secondary school students in Al-Hassa, Saudi Arabia. *Journal of Behavioral Medicine*, 1-12.
- Amin, T. T., Amr, M. A. M., Zaza, B. O., Kaliyadan, F. (2012). Predictors of waterpipe smoking among secondary school adolescents in Al Hassa, Saudi Arabia. *International Journal Of Behavioral Medicine*, 19(3), 324-335.
- Amrock, S. M., Gordon, T., Zelikoff, J. T., Weitzman, M. (2014). Hookah Use among adolescents in the United states: results of a national survey. *Nicotine & Tobacco Research*, 16(2), 231-237.
- Anjum, Q., Ahmed, F., Ashfaq, T. (2008). Knowledge, attitude and perception of water pipe smoking (Shisha) among adolescents aged 14-19 years. *JPMA. The journal of the Pakistan Medical Association*, 58(6), 312.

- Arebi, S. (1994). *Women and words in Saudi Arabia: The politics of literary discourse*: Columbia University Press.
- Arens, C. R., White, T. L., Massengill, N. (2014). Attitudinal factors protective against youth smoking: an integrative review. *Journal of Nursing Scholarship*, 46(3), 167-175.
- Arnold, E., Greco, E., Desmond, K., Rotheram-Borus, M. J. (2014). When life is a drag: Depressive symptoms associated with early adolescent smoking. *Vulnerable children and youth studies*, 9(1), 1-9.
- Arora, M., Gupta, V. K., Nazar, G. P., Stigler, M. H., Perry, C. L., et al. (2012). Impact of tobacco advertisements on tobacco use among urban adolescents in India: results from a longitudinal study. *Tobacco Control*, 21(3), 318-324.
- Asfar, T., Ward, K. D., Eissenberg, T., Maziak, W. (2005). Comparison of patterns of use, beliefs, and attitudes related to waterpipe between beginning and established smokers. *BMC Public Health*, 5(1), 19.
- Azhar, A., Alsayed, N. (2011). Prevalence of smoking among female medical students in Saudi Arabia. *Asian Pac J Cancer Prev*, 3(9), 4245-4248.
- Baheiraei, A., Hamzehgardeshi, Z., Mohammadi, M., Nedjat, S., Mohammadi, E. (2013a). Lifetime and current waterpipe use among adolescents in Tehran, Islamic Republic of Iran. *Eastern Mediterranean Health Journal*, 19(12).
- Baheiraei, A., Hamzehgardeshi, Z., Mohammadi, M., Nedjat, S., Mohammadi, E. (2013b). Personal and Family Factors Affecting Life time Cigarette Smoking Among Adolescents in Tehran (Iran): A Community Based Study. *Oman Medical Journal*, 28(3), 184.
- Bailey, D. (2012). *Girls: Being Best Friends*: The Rosen Publishing Group.
- Baker, O. G., Rice, V. (2008). Predictors of narghile (water-pipe) smoking in a sample of American Arab Yemeni adolescents. *Journal of Transcultural Nursing*, 19(1), 24.
- Bandason, T., Rusakaniko, S. (2010). Prevalence and associated factors of smoking among secondary school students in Harare Zimbabwe. *Tobacco Induced Diseases*, 8(1), 1-9.
- Bandura, A. (1986). *Social foundations of thought and action*: Englewood Cliffs, NJ Prentice Hall.
- Bandura, A. (1995). *Self-efficacy in Changing Societies*: New York: Cambridge university press.
- Bandura, A., McClelland, D. C. (1977). *Social Learning Theory*. New York: General Learning Press.

- Barnett, T. E., Curbow, B. A., Weitz, J. R., Johnson, T. M., Smith-Simone, S. Y. (2009). Water pipe tobacco smoking among middle and high school students. *American Journal of Public Health, 99*(11), 2014-2019.
- Basahi, J. A. (2010). Saudi Arabia 2010 (Ages 13-15) Global Youth Tobacco Survey (GYTS). In Tobacco Control Program Ministry of Health Saudi Arabia (Ed.), *GYTS, Fact sheet*. EMRO, Centers for Disease Control and Prevention (CDC): World Health Organization WHO.
- Bassiony, M. M. (2009). Smoking in Saudi Arabia. *Saudi Medical Journal, 30*(7), 876-881.
- Bejjani, N., El Bcheraoui, C., Adib, S. M. (2012). The social context of tobacco products use among adolescents in Lebanon (MedSPAD-Lebanon). *Journal of Epidemiology and Global Health, 2*(1), 15-22.
- Berndt, T. J. (1979). Developmental changes in conformity to peers and parents. *Developmental Psychology, 15*(6), 608.
- Bilano, V., Gilmour, S., Moffiet, T., d'Espaignet, E. T., Stevens, G. A., et al. (2015). Global trends and projections for tobacco use, 1990–2025: an analysis of smoking indicators from the WHO Comprehensive Information Systems for Tobacco Control. *The Lancet, 385*(9972), 966-976.
- Bjartveit, K., Tverdal, A. (2005). Health consequences of smoking 1–4 cigarettes per day. *Tobacco Control, 14*(5), 315-320.
- Bonilha, A. G., Ruffino-Netto, A., Sicchieri, M. P., Achcar, J. A., Rodrigues-Júnior, A. L., et al. (2014). Correlates of experimentation with smoking and current cigarette consumption among adolescents. *Jornal Brasileiro de Pneumologia, 40*(6), 634-642.
- Brener, N. D., Billy, J. O., Grady, W. R. (2003). Assessment of factors affecting the validity of self-reported health-risk behavior among adolescents: evidence from the scientific literature. *Journal of Adolescent Health, 33*(6), 436-457.
- Bricker, J. B., Peterson, A. V., Sarason, I. G., Andersen, M. R., Rajan, K. B. (2007). Changes in the influence of parents' and close friends' smoking on adolescent smoking transitions. *Addictive Behaviors, 32*(4), 740-757.
- Budman, C. L., Lipson, J. G., Meleis, A. I. (1992). The cultural consultant in mental health care: the case of an Arab adolescent. *American Journal of Orthopsychiatry*.
- Buller, D. B., Borland, R., Woodall, W. G., Hall, J. R., Burris-Woodall, P., et al. (2003). Understanding factors that influence smoking uptake. *Tobacco Control, 12*(suppl 4), iv16.
- Burke, H., Leonardi-Bee, J., Hashim, A., Pine-Abata, H., Chen, Y., et al. (2012). Prenatal and passive smoke exposure and incidence of asthma and wheeze: systematic review and meta-analysis. *Pediatrics, 129*(4), 735-744.

- Byeon, H. (2015). Association among smoking, depression, and anxiety: findings from a representative sample of Korean adolescents. *PeerJ*, 3, e1288.
- Carpenter, M. J., Garrett-Mayer, E., Vitoc, C., Cartmell, K., Biggers, S., et al. (2009). Adolescent nondaily smokers: Favorable views of tobacco yet receptive to cessation. *Nicotine & Tobacco Research*, 11(4), 348-355.
- Carroll Chapman, S. L., Wu, L.-T. (2014). E-cigarette prevalence and correlates of use among adolescents versus adults: A review and comparison. *Journal of Psychiatric Research*, 54, 43-54.
- Carvajal, S. C., Granillo, T. M. (2006). A prospective test of distal and proximal determinants of smoking initiation in early adolescents. *Addictive Behaviors*, 31(4), 649-660.
- Carvajal, S. C., Hanson, C., Downing, R. A., Coyle, K. K., Pederson, L. L. (2004). Theory-Based Determinants of Youth Smoking: A Multiple Influence Approach. *Journal of Applied Social Psychology*, 34(1), 59-84.
- CASA. (2003). National Survey of American Attitudes on Substance Abuse VII: Teens and Parents. *CASA, The National Center on Addiction and Substance Abuse at Columbia University*.
- CDC. (2006). The Health Consequences of Involuntary Exposure to Tobacco Smoke: A Report of The Surgeon General. *Office on Smoking and Health (US). Atlanta: Centers for Disease Control and Prevention (CDC)*.
- CDC. (2008). Global Youth Tobacco Survey (GYTS) Core Questionnaire, 2007 57(SS01), 23-26
- CDC. (2012). National Youth Tobacco Survey (NYTS), from http://www.cdc.gov/tobacco/data_statistics/surveys/nyts/
- CDC. (2013). Tobacco product use among middle and high school students-United States, 2011 and 2012. *MMWR. Morbidity and Mortality Weekly Report*, 62(45), 893.
- Chaaya, M., El Roueiheb, Z., Chemaitelly, H., Azar, G., Nasr, J., et al. (2004). Argileh smoking among university students: a new tobacco epidemic. *Nicotine & Tobacco Research*, 6(3), 457-463.
- Chaiton, M. O., Cohen, J. E., O'Loughlin, J., Rehm, J. (2009). A systematic review of longitudinal studies on the association between depression and smoking in adolescents. *BMC Public Health*, 9(1), 356.
- Chaloupka, F. J., Yurekli, A., Fong, G. T. (2012). Tobacco taxes as a tobacco control strategy. *Tobacco Control*, 21(2), 172-180.
- Chen, C.-Y., Lin, I.-F., Huang, S. L., Tsai, T.-I., Chen, Y.-Y. (2013). Disposable income with tobacco smoking among young adolescents: a multilevel analysis. *Journal of Adolescent Health*, 52(6), 724-730.

- Chun, J. (2015). Determinants of tobacco use among Korean female adolescents: Longitudinal test of the theory of triadic influence. *Children and Youth Services Review, 50*, 83-87.
- CIA. (2010). The world factbook Retrieved 3 Feb, 2016, from <https://www.cia.gov/library/publications/the-world-factbook/geos/xx.html>
- Cobb, C. O., Shihadeh, A., Weaver, M. F., Eissenberg, T. (2011). Waterpipe tobacco smoking and cigarette smoking: a direct comparison of toxicant exposure and subjective effects. *Nicotine & Tobacco Research, 13*(2), 78-87.
- Colby, S. M., Tiffany, S. T., Shiffman, S., Niaura, R. S. (2000). Are adolescent smokers dependent on nicotine? A review of the evidence. *Drug and Alcohol Dependence, 59*, 83-95.
- Colgan, Y., Turnbull, D. A., Mikocka-Walus, A. A., Delfabbro, P. (2010). Determinants of resilience to cigarette smoking among young Australians at risk: an exploratory study. *Tobacco Induced Diseases, 8*(1), 1.
- Collins, R. L., Ellickson, P. L. (2004). Integrating four theories of adolescent smoking. *Substance Use and Misuse, 39*(2), 179-209.
- Combrink, A., Irwin, N., Laudin, G., Naidoo, K., Plagerson, S., et al. (2010). High prevalence of hookah smoking among secondary school students in a disadvantaged community in Johannesburg. *SAMJ: South African Medical Journal, 100*(5), 297-299.
- Corrao, M. A., Guindon, G. E., Cokkinides, V., Sharma, N. (2000). Building the evidence base for global tobacco control. *Bulletin of the World Health Organization, 78*(7), 884-890.
- Darling, N., Cumsille, P. (2003). Theory, measurement, and methods in the study of family influences on adolescent smoking. *Addiction, 98*, 21-36.
- Darren, G., Mallery, P. (2003). SPSS for Windows step by step: A simple guide and reference. 11.0 update: Boston: Allyn & Bacon.
- Davis, K. C., Farrelly, M. C., Messeri, P., Duke, J. (2009). The impact of national smoking prevention campaigns on tobacco-related beliefs, intentions to smoke and smoking initiation: results from a longitudinal survey of youth in the United States. *International Journal of Environmental Research And Public Health, 6*(2), 722-740.
- Dawkins, R. (1989). *The selfish gene*. Oxford, UK: Oxford University Press.
- DiFranza, J. R. (2007). Hooked from the first cigarette. *Journal of Family Practice, 56*(12), 1017-1024.
- Doku, D., Koivusilta, L., Rainio, S., Rimpelä, A. (2010). Socioeconomic differences in smoking among Finnish adolescents from 1977 to 2007. *Journal of Adolescent Health, 47*(5), 479-487.

- Doubeni, C. A., Li, W., Fouayzi, H., DiFranza, J. R. (2008). Perceived accessibility as a predictor of youth smoking. *The Annals of Family Medicine*, 6(4), 323-330.
- Du, Y., Palmer, P. H., Sakuma, K.-L., Blake, J., Johnson, C. A. (2015). The association between family structure and adolescent smoking among multicultural students in Hawaii. *Preventive Medicine Reports*, 2, 206-212.
- Eissenberg, T., Shihadeh, A. (2009). Waterpipe tobacco and cigarette smoking: direct comparison of toxicant exposure. *American Journal of Preventive Medicine*, 37(6), 518-523.
- El-Awa, F., Warren, C. W., Jones, N. R. (2010). Changes in tobacco use among 13-15 year olds between 1999 and 2007: findings from the Eastern Mediterranean Region. *Eastern Mediterranean Health Journal*, 16(3).
- El-Roueiheb, Z., Tamim, H., Kanj, M., Jabbour, S., Alayan, I., et al. (2008). Cigarette and waterpipe smoking among Lebanese adolescents, a cross-sectional study, 2003-2004. *Nicotine & Tobacco Research*, 10(2), 309.
- El Awa, F. (2004). The role of religion in tobacco control interventions. *Bulletin of the World Health Organization*, 82(12), 894-894.
- El Awa, F., Fouad, H., El Naga, R., Emam, A., Labib, S. (2013). Prevalence of tobacco use among adult and adolescent females in Egypt. *Eastern Mediterranean Health Journal*, 19(8).
- Elders, M. J. (1997). *Preventing tobacco use among young people: a report of the Surgeon General*: DIANE Publishing.
- Elliott, D. S., Huizinga, D., Ageton, S. S. (1985). *Explaining delinquency and drug use*: Sage Publications.
- Engels, R. C., Hale III, W. W., Noom, M., Vries, H. d. (2005). Self-efficacy and emotional adjustment as precursors of smoking in early adolescence. *Substance Use and Misuse*, 40(12), 1883-1893.
- Erbaydar, T., Lawrence, S., Dagli, E., Hayran, O., Collishaw, N. E. (2005). Influence of social environment in smoking among adolescents in Turkey. *The European Journal of Public Health*, 15(4), 404-410.
- Eriksen, M., Machay, J., Ross, H. (2012). *The tobacco atlas 4rd ed*. World Health Organization.
- Eriksen, M., Mackay, J., Schluger, N., Gomeshtapeh, F. I., Drope, J. (2015). *The Tobacco Atlas 5th ed*. World Health Organization.
- Fathelrahman, A. I., Al-Sohaim, S. I. (2013). Tobacco Control Initiatives in Qassim University, Saudi Arabia. *Nicotine & Tobacco Research*, nts273.
- Felicia, J. M. (2005). *Psychosocial Determinants of Cigarettes Smoking among Female Adolescents*. Unpublished doctoral dissertation, Walden University, USA.

- Fielder, R. L., Carey, K. B., Carey, M. P. (2012). Predictors of initiation of hookah tobacco smoking: A one-year prospective study of first-year college women. *Psychology of Addictive Behaviors*, 26(4), 963.
- Finkelstein, D. M., Kubzansky, L. D., Goodman, E. (2006). Social status, stress, and adolescent smoking. *Journal of Adolescent Health*, 39(5), 678-685.
- Flay, B. R., Petraitis, J., Hu, F. B. (1999). Psychosocial risk and protective factors for adolescent tobacco use. *Nicotine & Tobacco Research*.
- Foster, S. E., Jones, D. J., Olson, A. L., Forehand, R., Gaffney, C. A., et al. (2007). Family socialization of adolescent's self-reported cigarette use: the role of parents' history of regular smoking and parenting style. *Journal of Pediatric Psychology*, 32(4), 481-493.
- Francis, K., Katsani, G., Sotiropoulou, X., Roussos, A., Roussos, C. (2007). Cigarette smoking among Greek adolescents: behavior, attitudes, risk, and preventive factors. *Substance Use and Misuse*, 42(8), 1323-1336.
- Gadalla, S., Aboul-Fotouh, A., El-Setouhy, M., Mikhail, N., Abdel-Aziz, F., et al. (2003). Prevalence of smoking among rural secondary school students in Qalyobia governorate. *Journal of the Egyptian Society of Parasitology*, 33(3 Suppl), 1031.
- Gaffar, A. M., Alsanosy, R. M., Mahfouz, M. S. (2013). Sociodemographic factors associated with tobacco smoking among intermediate and secondary school students in jazan region of Saudi Arabia. *Substance Abuse*, 34(4), 381-388.
- Galobardes, B., Shaw, M., Lawlor, D. A., Lynch, J. W., Smith, G. D. (2006). Indicators of socioeconomic position (part 1). *Journal of Epidemiology and Community Health*, 60(1), 7-12.
- Gaudet, M. M., Gapstur, S. M., Sun, J., Diver, W. R., Hannan, L. M., et al. (2013). Active smoking and breast cancer risk: original cohort data and meta-analysis. *Journal of the National Cancer Institute*, djt023.
- Gholamreza, H., Ahmady, A. E., Lando, H. A., Shadmehr, M., Fadaizadeh, L. (2014). The second study on WHO MPOWER tobacco control scores in Eastern Mediterranean Countries based on the 2013 report: improvements over two years. *Archives of Iranian medicine*, 17(9), 621-625.
- Ghouri, N., Atcha, M., Sheikh, A. (2006). Influence of Islam on smoking among Muslims. *British Medical Journal*, 332(7536), 291-294.
- Gilreath, T. D., Leventhal, A., Barrington-Trimis, J. L., Unger, J. B., Cruz, T. B., et al. (2016). Patterns of Alternative Tobacco Product Use: Emergence of Hookah and E-cigarettes as Preferred Products Amongst Youth. *Journal of Adolescent Health*, 58(2), 181-185.
- Gomes, F. C., Andrade, A. G. d., Izbicki, R., Moreira-Almeida, A., Oliveira, L. G. d. (2013). Religion as a protective factor against drug use among Brazilian

- university students: a national survey. *Revista Brasileira de Psiquiatria*, 35(1), 29-37.
- Gong, J., Chen, X., Guo, Q., Zhou, D., Palmer, P., et al. (2006). Are private school students more likely to smoke than public school students in China? *Preventive Medicine*, 43(2), 117-121.
- Greaves, L. (2007). Gender and tobacco control: a policy brief. World Health Organization.
- Grenard, J. L., Guo, Q., Jasuja, G. K., Unger, J. B., Chou, C.-P., et al. (2006). Influences affecting adolescent smoking behavior in China. *Nicotine & Tobacco Research*, 8(2), 245-255.
- Griesbach, D., Amos, A., Currie, C. (2003). Adolescent smoking and family structure in Europe. *Social Science and Medicine*, 56(1), 41-52.
- Griffiths, M. A., Harmon, T. R., Gilly, M. C. (2011). Hubble bubble trouble: the need for education about and regulation of Hookah smoking. *Journal of Public Policy & Marketing*, 30(1), 119-132.
- Gryczynski, J., Ward, B. W. (2010). Social norms and the relationship between cigarette use and religiosity among adolescents in the United States. *Health Education and Behavior*, 1090198110372331.
- Guo, Q., Unger, J. B., Azen, S. P., Li, C., Spruijt-Metz, D., et al. (2010). Cognitive attributions for smoking among adolescents in China. *Addictive Behaviors*, 35(2), 95-101.
- GYTSCG. (2002). Tobacco use among youth: a cross country comparison. The Global Youth Tobacco Survey Collaborative Group. *Tobacco Control*, 11(3), 252-270.
- GYTSCG. (2003). Differences in worldwide tobacco use by gender: findings from the Global Youth Tobacco Survey, Collaborating Group. *Journal of School Health*, 73(6), 207-215.
- Haddad, L., El-Shahawy, O., Ghadban, R., Barnett, T. E., Johnson, E. (2015). Waterpipe smoking and regulation in the United States: a comprehensive review of the literature. *International Journal of Environmental Research and Public Health*, 12(6), 6115-6135.
- Hamilton, H. A., Ferrence, R., Boak, A., O'Connor, S., Mann, R. E., et al. (2015). Waterpipe use among high school students in Ontario: Demographic and substance use correlates. *Canadian Journal of Public Health*, 106(3), E121-126.
- Hanson, M. D., Chen, E. (2007). Socioeconomic status and health behaviors in adolescence: a review of the literature. *Journal of Behavioral Medicine*, 30(3), 263-285.

- Hanson, M. J. S. (2005). An examination of ethnic differences in cigarette smoking intention among female teenagers. *Journal of the American Academy of Nurse Practitioners*, 17(4), 149-155.
- Harakeh, Z., Vollebergh, W. A. (2012). The impact of active and passive peer influence on young adult smoking: An experimental study. *Drug and Alcohol Dependence*, 121(3), 220-223.
- Harrabi, I., Maaloul, J., Gaha, R., Kebaili, R., Maziak, W., et al. (2010). Comparison of cigarette and waterpipe smoking among pupils in the urban area of Sousse, Tunisia. *Tunisie Medicale*, 88(7), 470-473.
- Haseebullah, Almotairi, M. (2012). Smoking in Saudi Arabia and its control measures. *British Journal Of Humanities And Social Sciences*, 5(2), 69-75.
- Heale, R., Griffin, M. T. (2009). Self-efficacy with application to adolescent smoking cessation: a concept analysis. *Journal of Advanced Nursing*, 65(4), 912-918.
- Hiscock, R., Bauld, L., Amos, A., Fidler, J. A., Munafo, M. (2012). Socioeconomic status and smoking: a review. *Annals of the New York Academy of Sciences*, 1248(1), 107-123.
- Hosmer Jr, D. W., Lemeshow, S., Sturdivant, R. X. (2013). *Applied Logistic Regression (Third edition)*: John Wiley & Sons.
- Hussain, H. Y., Satar, B. A. A. (2013). Prevalence and determinants of tobacco use among Iraqi adolescents: Iraq GYTS 2012. *Tobacco Induced Diseases*, 11(1), 1-4.
- Huxley, R. R., Woodward, M. (2011). Cigarette smoking as a risk factor for coronary heart disease in women compared with men: a systematic review and meta-analysis of prospective cohort studies. *The Lancet*, 378(9799), 1297-1305.
- Islam, S. M., Johnson, C. A. (2005). Influence of known psychosocial smoking risk factors on Egyptian adolescents' cigarette smoking behavior. *Health Promotion International*, 20(2), 135-145.
- Jabbour, S., Fouad, F. M. (2004). Religion-based tobacco control interventions: how should WHO proceed? *Bulletin of the World Health Organization*, 82(12), 923-927.
- Jaber, R. M. (2015). *Determinants of Waterpipe and Cigarette Smoking Progression among a School Based Sample of Adolescents in Irbid, Jordan: A Three-Year Longitudinal Study (2008-2011)*. FIU Electronic Theses and Dissertations. Retrieved from <http://digitalcommons.fiu.edu/etd/1755>
- Jackson, D., Aveyard, P. (2008). Waterpipe smoking in students: prevalence, risk factors, symptoms of addiction, and smoke intake. Evidence from one British university. *BMC Public Health*, 8(1), 174.
- Jacob, P., Raddaha, A. H. A., Dempsey, D., Havel, C., Peng, M., et al. (2013). Comparison of Nicotine and Carcinogen Exposure with Water Pipe and

Cigarette Smoking. *Cancer Epidemiology Biomarkers & Prevention*, 22(5), 765-772.

Jafari, A., Süerdem, A. (2012). An analysis of material consumption culture in the Muslim world. *Marketing Theory*, 12(1), 61-79.

Jamrozik, K. (2004). Population strategies to prevent smoking. *British Medical Journal*, 328(7442), 759-762.

Jamrozik, K. (2005). Estimate of deaths attributable to passive smoking among UK adults: database analysis. *BMJ: British Medical Journal*, 330(7495), 812.

Jarallah, J. S., Al-Rubeaan, K. A., Al-Nuaim, A. R. A., Al-Ruhaily, A. A., Kalantan, K. A. (1999). Prevalence and determinants of smoking in three regions of Saudi Arabia. *Tobacco Control*, 8(1), 53-56.

Jasim, S. M., Kadhim, L., El-Awa, F., Fouad, H., Warren, C. W., et al. (2009). Tobacco Use Among Students Aged 13–15 Years—Baghdad, Iraq, 2008. *Morbidity and Mortality Weekly Report*, 58(12), 305-308.

Jawad, M., Lee, J. T., Millett, C. (2015). Waterpipe tobacco smoking prevalence and correlates in 25 Eastern Mediterranean and Eastern European countries: cross-sectional analysis of the Global Youth Tobacco Survey. *Nicotine & Tobacco Research*, ntv101.

Jawad, M., Power, G. (2016). Prevalence, correlates and patterns of waterpipe smoking among secondary school students in southeast London: a cross-sectional study. *BMC Public Health*, 16(1), 1.

Jawad, M., Wilson, A., Lee, J. T., Jawad, S., Hamilton, F. L., et al. (2013). Prevalence and predictors of water pipe and cigarette smoking among secondary school students in London. *Nicotine & Tobacco Research*, 15(12), 2069-2075.

Jessor, R., Jessor, S. L. (1977). Problem behavior and psychosocial development: A longitudinal study of youth. *New York, Academic Press*

Joffer, J., Burell, G., Bergström, E., Stenlund, H., Sjörs, L., et al. (2014). Predictors of smoking among Swedish adolescents. *BMC Public Health*, 14(1), 1296.

Jones, L. L., Hashim, A., McKeever, T., Cook, D. G., Britton, J., et al. (2011). Parental and household smoking and the increased risk of bronchitis, bronchiolitis and other lower respiratory infections in infancy: systematic review and meta-analysis. *Respiratory Research*, 12(1), 1-11.

Jones, L. L., Hassanien, A., Cook, D. G., Britton, J., Leonardi-Bee, J. (2012). Parental smoking and the risk of middle ear disease in children: a systematic review and meta-analysis. *Archives of Pediatrics and Adolescent Medicine*, 166(1), 18-27.

Jradi, H., Wewers, M., Pirie, P., Binkley, P., Ferketich, A. (2013). Cigarette and waterpipe smoking associated knowledge and behaviour among medical students in Lebanon. *Eastern Mediterranean Health Journal*, 19(10).

- Kabir, M., Goh, K.-L., Khan, M. (2013). Adolescent Tobacco Use and Its Determinants Evidence From Global Youth Tobacco Survey, Bangladesh 2007. *Asia-Pacific Journal of Public Health*, 1-13.
- Kakodkar, P. V., Bansal, S. S. (2013). Hookah Smoking: Characteristics, Behavior and Perceptions of Youth Smokers in Pune, India. *Asian Pacific Journal of Cancer Prevention*, 14(7), 4319-4323.
- Kandela, P. (2000). Beirut Nargile smoking keeps Arabs in Wonderland. *The Lancet*, 356(9236), 1175.
- Karimy, M., Niknami, S., Heidarnia, A. R., Hajizadeh, E., Shamsi, M. (2013). Refusal Self Efficacy, Self Esteem, Smoking Refusal Skills and Water Pipe (Hookah) Smoking among Iranian Male Adolescents. *Asian Pacific Journal of Cancer Prevention*, 14(12), 7283-7288.
- Karimy, M., Niknami, S., Heidarnia, A. R., Hajizadeh, I., Montazeri, A. (2013). Prevalence and determinants of male adolescents' smoking in Iran: An explanation based on the theory of planned behavior. *Iranian Red Crescent Medical Journal*, 15(3), 187-193.
- Kaufman, A. R., Augustson, E. M. (2008). Predictors of regular cigarette smoking among adolescent females: does body image matter? *Nicotine & Tobacco Research*, 10(8), 1301-1309.
- Kavas, A. B. (2009). Self-esteem and health-risk behaviors among Turkish late adolescents. *Adolescence*, 44(173), 187.
- Kazarian, S. S. (2009). Arabic Contingencies of Self Worth: Arabic Translation and Validation of the Contingencies of Self in Lebanese Youth. *The Arab Journal of Psychiatry*, 20(2), 123-134.
- Kelishadi, R., Ardalan, G., Gheiratmand, R., Majdzadeh, R., Delavari, A., et al. (2006). Smoking behavior and its influencing factors in a national-representative sample of Iranian adolescents: CASPIAN study. *Preventive Medicine*, 42(6), 423-426.
- Kelishadi, R., Mokhtari, M., Tavasoli, A. A., Khosravi, A., Ahangar-Nazari, I., et al. (2007). Determinants of tobacco use among youths in Isfahan, Iran. *International Journal of Public Health*, 52(3), 173-179.
- Khademalhosseini, Z., Ahmadi, J., Khademalhosseini, M. (2015). Prevalence of Smoking, and its relationship with depression, and anxiety in a sample of Iranian High School Students. *Enliven: Pharmacovigil Drug Saf*, 1(1), 005.
- Khader, Y., Alsadi, A. (2008). Smoking habits among university students in Jordan: prevalence and associated factors. *The Eastern Mediterranean Health Journal*, 14(4), 897-904.
- Khalil, J., Afifi, R., Fouad, F. M., Hammad, F., Jarallah, Y., et al. (2013). Women and waterpipe tobacco smoking in the eastern mediterranean region: allure or offensiveness. *Women and Health*, 53(1), 100-116.

- Khattab, A., Javaid, A., Iraqi, G., Alzaabi, A., Kheder, A. B., et al. (2012). Smoking habits in the Middle East and North Africa: results of the BREATHE study. *Respiratory Medicine*, 106, S16-S24.
- Kim, J.-Y., McHale, S. M., Wayne Osgood, D., Crouter, A. C. (2006). Longitudinal course and family correlates of sibling relationships from childhood through adolescence. *Child Development*, 77(6), 1746-1761.
- Kin, F., Lian, T. Y. (2008). Smoking in girls and young women in Malaysia. *National Poison Centre Universiti Sains Malaysia Penang, Malaysia*.
- Kline, R. B. (2005). Principles and Practice of Structural Equation Modeling. 2005. New York, NY: Guilford.
- Knishkowsky, B., Amitai, Y. (2005). Water-pipe (narghile) smoking: an emerging health risk behavior. *Pediatrics*, 116(1), e113.
- Korn, L., Magnezi, R. (2008). Cigarette and nargila (water pipe) use among Israeli Arab high school students: prevalence and determinants of tobacco smoking. *The Scientific World Journal*, 8, 517-525.
- Koura, M. R., Al-Dossary, A. F., Bahnassy, A. A. (2011). Smoking pattern among female college students in Dammam, Saudi Arabia. *Journal of Family and Community Medicine*, 18(2), 1-14.
- Kristjansson, A. L., Sigfusdottir, I. D., Allegrante, J. P., Helgason, A. R. (2009). Parental divorce and adolescent cigarette smoking and alcohol use: assessing the importance of family conflict. *Acta Paediatrica*, 98(3), 537-542.
- Kulwicki, A., Hill Rice, V. (2003). Arab American adolescent perceptions and experiences with smoking. *Public Health Nursing*, 20(3), 177-183.
- Kumar, V., Talwar, R., Roy, N., Raut, D., Singh, S. (2014). Psychosocial Determinants of Tobacco Use among School Going Adolescents in Delhi, India. *Journal of Addiction*, 2014.
- Labib, N., Radwan, G., Mikhail, N., Mohamed, M. K., El Setouhy, M., et al. (2007). Comparison of cigarette and water pipe smoking among female university students in Egypt. *Nicotine & Tobacco Research*, 9(5), 591-596.
- Lee, P. N. (2014). Health risks related to dual use of cigarettes and snus—A systematic review. *Regulatory Toxicology and Pharmacology*, 69(1), 125-134.
- Lemeshow, S., Hosmer, D. W., Klar, J., Lwanga, S. K. (1990). *Adequacy of sample size in health studies*. Hoboken, NJ: Wiley.
- Leonardi-Bee, J., Jere, M. L., Britton, J. (2011). Exposure to parental and sibling smoking and the risk of smoking uptake in childhood and adolescence: a systematic review and meta-analysis. *Thorax*, thx. 2010.153379.

- Lewinsohn, P. M., Brown, R. A., Seeley, J. R., Ramsey, S. E. (2000). Psychosocial correlates of cigarette smoking abstinence, experimentation, persistence and frequency during adolescence. *Nicotine & Tobacco Research*, 2(2), 121-131.
- Lim, K., Sumarni, M., Kee, C., Christopher, V., Noruiza Hana, M., et al. (2010). Prevalence and factors associated with smoking among form four students in Petaling District, Selangor, Malaysia. *Tropical Biomedicine*, 27(3), 394-403.
- Lim, K. H., Chong, Z., Khoo, Y. Y., Kaur, J. (2014). Parental Smoking Status, Stress, Anxiety, and Depression Are Associated With Susceptibility to Smoking Among Non-Smoking School Adolescents in Malaysia. *Asia-Pacific Journal of Public Health*, 26(5), 81S-90S.
- Loke, A. Y., Wong, Y. P. I. (2010). Smoking among young children in Hong Kong: influence of parental smoking. *Journal of Advanced Nursing*, 66(12), 2659-2670.
- Loureiro, M. L., Sanz-de-Galdeano, A., Vuri, D. (2010). Smoking Habits: Like Father, Like Son, Like Mother, Like Daughter? *Oxford Bulletin of Economics and Statistics*, 72(6), 717-743.
- Lovato, C., Watts, A., Stead, L. F. (2011). Impact of tobacco advertising and promotion on increasing adolescent smoking behaviours. *Cochrane Database Syst Rev*, 10.
- Lovibond, S., Lovibond, P. F. (1996). Manual for the depression, anxiety stress scales. 2nd edition. *Sydney. Psychology Foundation*.
- Ma, H., Unger, J. B., Chou, C.-P., Sun, P., Palmer, P. H., et al. (2008). Risk factors for adolescent smoking in urban and rural China: findings from the China seven cities study. *Addictive Behaviors*, 33(8), 1081-1085.
- Mackay, J., Amos, A. (2003). Women and tobacco. *Respirology*, 8(2), 123-130.
- Mackay, J., Eriksen, M. (2002). *The Tobacco Atlas 1st ed.* World Health Organization
- Mackay, J., Eriksen, M., Shafey, O. (2006). *The Tobacco Atlas 2nd edn.* World Health Organization.
- MacPherson, L., Myers, M. G. (2009). Examination of a process model of adolescent smoking self-change efforts in relation to gender. *Journal of Child & Adolescent Substance Abuse*, 19(1), 48-65.
- Madkour, A. S., Ledford, E. C., Andersen, L., Johnson, C. C. (2013). Tobacco advertising/promotions and adolescents' smoking risk in Northern Africa. *Tobacco Control*.
- Mak, K.-K., Ho, S.-Y., Thomas, G. N., Schooling, C. M., McGhee, S. M., et al. (2010). Family structure, parent-child conversation time and substance use among Chinese adolescents. *BMC Public Health*, 10(1), 1.

- Mandil, A., BinSaeed, A., Ahmad, S., Al-Dabbagh, R., Alsaadi, M., et al. (2010). Smoking among university students: a gender analysis. *Journal of Infection and Public Health*, 3(4), 179-187.
- Martinasek, M. P., McDermott, R. J., Martini, L. (2011). Waterpipe (hookah) tobacco smoking among youth. *Current Problems in Pediatric and Adolescent Health Care*, 41(2), 34-57.
- Martínez-Sánchez, J. M., Blanch, C., Fu, M., Gallus, S., La Vecchia, C., et al. (2013). Do smoke-free policies in work and public places increase smoking in private venues? *Tobacco Control*, tobaccocontrol-2012-050877.
- Mathur, C. (2010). *Socioeconomic Status and Tobacco Use Behavior in Adolescence*. University of Minnesota.
- Mayhew, K. P., Flay, B. R., Mott, J. A. (2000). Stages in the development of adolescent smoking. *Drug and Alcohol Dependence*, 59, 61-81.
- Maziak, W. (2010). The global epidemic of waterpipe smoking. *Addictive Behaviors*, 36(1), 1-5.
- Maziak, W., Asfar, T., Mock, J. (2003). Why most women in Syria do not smoke: can the passive barrier of traditions be replaced with an information-based one? *Public Health*, 117(4), 237-241.
- Maziak, W., Asfar, T., Mzayek, F. (2001). Socio-demographic determinants of smoking among low-income women in Aleppo, Syria. *The International Journal of Tuberculosis and Lung Disease*, 5(4), 307-312.
- Maziak, W., Eissenberg, T., Rastam, S., Hammal, F., Asfar, T., et al. (2004). Beliefs and attitudes related to narghile (waterpipe) smoking among university students in Syria. *Annals of Epidemiology*, 14(9), 646-654.
- Maziak, W., Fouad, F. M., Asfar, T., Hammal, F., Bachir, E. M., et al. (2004). Prevalence and characteristics of narghile smoking among university students in Syria. *The International Journal of Tuberculosis and Lung Disease*, 8(7), 882-889.
- Maziak, W., Taleb, Z. B., Bahelah, R., Islam, F., Jaber, R., et al. (2014). The global epidemiology of waterpipe smoking. *Tobacco Control*, doi:10.1136/tobaccocontrol-2014-051903.
- Maziak, W., Ward, K. D., Afifi Soweid, R. A., Eissenberg, T. (2004). Tobacco smoking using a waterpipe: a re-emerging strain in a global epidemic. *Tobacco Control*, 13(4), 327.
- Maziak, W., Ward, K. D., Afifi Soweid, R. A., Eissenberg, T. (2005). Standardizing questionnaire items for the assessment of waterpipe tobacco use in epidemiological studies. *Public Health*, 119(5), 400-404.
- McKelvey, K., Attonito, J., Madhivanan, P., Jaber, R., Yi, Q., et al. (2014). Determinants of waterpipe smoking initiation among school children in Irbid,

- Jordan: a 4-year longitudinal analysis. *Drug and Alcohol Dependence*, 142, 307-313.
- Merdad, L. A., Al-Zahrani, M. S., Farsi, J. M. (2007). Smoking habits among Saudi female university students: Prevalence, influencing factors and risk awareness. *Annals of Saudi Medicine*, 27(5), 366.
- Minaker, L. M. (2014). Flavored tobacco use among Canadian students in grades 9 through 12: prevalence and patterns from the 2010–2011 youth smoking survey. *Preventing Chronic Disease*, 11.
- Minaker, L. M., Shuh, A., Burkhalter, R. J., Manske, S. R. (2015). Hookah use prevalence, predictors, and perceptions among Canadian youth: findings from the 2012/2013 Youth Smoking Survey. *Cancer Causes and Control*, 26(6), 831-838.
- Mohammad-Alizadeh-Charandabi, S., Mirghafourvand, M., Tavananezhad, N., Karkhaneh, M. (2014). Prevalence of cigarette and water pipe smoking and their predictors among Iranian adolescents. *International Journal of Adolescent Medicine and Health*, 27(3), 291-298.
- Mohammad-Alizadeh-Charandabi, S., Mirghafourvand, M., Tavananezhad, N., Karkhaneh, M. (2015). Prevalence of cigarette and water pipe smoking and their predictors among Iranian adolescents. *International Journal of Adolescent Medicine and Health*, 27(3), 291-298.
- Mohammed, H., Newman, I., Tayeh, R. (2006). Sheesha smoking among a sample of future teachers in Kuwait. *Kuwait Medical Journal*, 38(2), 107.
- Mohammed, H., Zhang, Y., Newman, I., Shell, D. (2010). Waterpipe smoking in Kuwait. *Eastern Mediterranean Health Journal*, 16(11).
- Moradi-Lakeh, M., El Bcheraoui, C., Tuffaha, M., Daoud, F., Al Saeedi, M., et al. (2015). Tobacco consumption in the Kingdom of Saudi Arabia, 2013: findings from a national survey. *BMC Public Health*, 15(1), 1.
- Morrell, H. E., Cohen, L. M. (2006). Cigarette smoking, anxiety, and depression. *Journal of Psychopathology and Behavioral Assessment*, 28(4), 281-295.
- Mulvihill, C. (2014). Parental and Peer Influences on Adolescent Smoking: A Literature Review. *Revue interdisciplinaire des sciences de la santé- Interdisciplinary Journal of Health Sciences*, 4(1), 33-38.
- Municipality, J. (2013). Jeddah Municipality, geographical location Retrieved 21-8, 2013, from <http://www.jeddah.gov.sa/English/JeddahCity/Geographical.php>
- Muula, A., Siziya, S. (2007). Prevalence and determinants of ever smoked cigarettes among school-going adolescents in Lusaka, Zambia. *African Health Sciences*, 7(4).

- Mzayek, F., Khader, Y., Eissenberg, T., Al Ali, R., Ward, K. D., et al. (2012). Patterns of water-pipe and cigarette smoking initiation in schoolchildren: Irbid longitudinal smoking study. *Nicotine & Tobacco Research*, 14(4), 448-454.
- Nakkash, R., Lee, K. (2009). The tobacco industry's thwarting of marketing restrictions and health warnings in Lebanon. *Tobacco Control*, 18(4), 310-316.
- Natto, S., Baljoon, M., Bergstrom, J. (2005). Tobacco smoking and periodontal bone height in a Saudi Arabian population. *Journal of Clinical Periodontology*, 32(9), 1000-1006.
- Nebot, M., Tomas, Z., Ariza, C., Valmayor, S., López, M., et al. (2004). Factors associated with smoking onset: 3-year cohort study of schoolchildren. *Archivos de Bronconeumología ((English Edition))*, 40(11), 495-501.
- Nofziger, S., Lee, H.-R. (2006). Differential Associations and Daily Smoking of Adolescents The Importance of Same-Sex Models. *Youth & Society*, 37(4), 453-478.
- Nuzzo, E., Shensa, A., Kim, K. H., Fine, M. J., Barnett, T. E., et al. (2013). Associations between hookah tobacco smoking knowledge and hookah smoking behavior among US college students. *Health Education Research*, 28(1), 92-100.
- O'Connor, R. J. (2012). Non-cigarette tobacco products: what have we learnt and where are we headed? *Tobacco Control*, 21(2), 181-190.
- O'Loughlin, J., Karp, I., Koulis, T., Paradis, G., DiFranza, J. (2009). Determinants of first puff and daily cigarette smoking in adolescents. *American Journal of Epidemiology*, 170(5), 585-597.
- Okoli, C. T., Kelly, T., Hahn, E. J. (2007). Secondhand smoke and nicotine exposure: a brief review. *Addictive Behaviors*, 32(10), 1977-1988.
- Okoli, C. T., Kodet, J. (2015). A systematic review of secondhand tobacco smoke exposure and smoking behaviors: smoking status, susceptibility, initiation, dependence, and cessation. *Addictive Behaviors*, 47, 22-32.
- Oksuz, E., Mutlu, E., Malhan, S. (2007). Characteristics of daily and occasional smoking among youths. *Public Health*, 121(5), 349-356.
- Özge, C., Toros, F., Bayramkaya, E., Çamdeviren, H., Şaşmaz, T. (2006). Which sociodemographic factors are important on smoking behaviour of high school students? The contribution of classification and regression tree methodology in a broad epidemiological survey. *Postgraduate Medical Journal*, 82(970), 532-541.
- Page, R. M., Huong, N. T., Chi, H. K., Tien, T. Q. (2012). Social normative beliefs about smoking among Vietnamese adolescents. *Asia-Pacific Journal of Public Health*, 24(1), 68-81.

- Page, R. M., Ihasz, F., Simonek, J., Klarova, R., Hantiu, I. (2006). Cigarette smoking, friendship factors, and social norm perceptions among Central and Eastern European high school students. *Journal of Drug Education*, 36(3), 213-231.
- Page, R. M., Piko, B. F., Balazs, M. A., Struk, T. (2011). Social normative beliefs regarding cigarette smoking in Hungarian adolescents. *Pediatrics International*, 53(5), 662-668.
- Palamar, J. J., Zhou, S., Sherman, S., Weitzman, M. (2014). Hookah use among US high school seniors. *Pediatrics*, 134(2), 227-234.
- Panaghi, L., Mohammadi, S., Poshtmashhadi, M., Zadehmohammadi, A., Ahmadabadi, Z. (2012). High Risk Behaviors among Iranian Adolescents: Evaluating the Proportion of Family Factors. *Iranian Journal of Clinical Psychology*, 1(1), 38-47.
- Park, H., Al Agili, D., Bartolucci, A. (2012). Factors affecting tobacco use among middle school students in Saudi Arabia. *Maternal and Child Health Journal*, 16(9), 1828-1836.
- Park, S.-W., Kim, J.-Y. (2009). Validity of self-reported smoking using urinary cotinine among vocational high school students. *Journal of Preventive Medicine and Public Health*, 42(4), 223-230.
- Park, S., Romer, D. (2007). Associations between smoking and depression in adolescence: an integrative review. *Taehan Kanho Hakhoe Chi*, 37(2), 227-241.
- Park, S., Weaver, T. E., Romer, D. (2009). Predictors of the transition from experimental to daily smoking among adolescents in the United States. *Journal for Specialists in Pediatric Nursing*, 14(2), 102-111.
- Park, S. E., Yoon, S.-N., Yi, Y., Cui, W., Nam, B. (2011). Prevalence and risk factors of adolescents smoking: Difference between Korean and Korean-Chinese. *Asian Nursing Research*, 5(3), 189-195.
- Parna, K., Usin, J., Ringmets, I. (2008). Cigarette and waterpipe smoking among adolescents in Estonia: HBSC survey results, 1994-2006. *BMC Public Health*, 8(1), 392.
- Peltzer, K. (2011). Early smoking initiation and associated factors among in-school male and female adolescents in seven African countries. *African Health Sciences*, 11(3).
- Petraitis, J., Flay, B. R., Miller, T. Q. (1995). Reviewing theories of adolescent substance use: Organizing pieces in the puzzle. *Psychological Bulletin*, 117(1), 67.
- Petticrew, M., Lee, K., Ali, H., Nakkash, R. (2015). "Fighting a Hurricane": Tobacco Industry Efforts to Counter the Perceived Threat of Islam. *American Journal of Public Health*, 105(6), 1086-1093.

- Pinto, D. d. S., Ribeiro, S. A. (2007). Variables related to smoking initiation among students in public and private high schools in the city of Belém, Brazil. *Jornal Brasileiro de Pneumologia*, 33(5), 558-564.
- Poyrazoglu, S., Sarli, S., Gencer, Z., Günay, O. (2010). Waterpipe (narghile) smoking among medical and non-medical university students in Turkey. *Upsala Journal of Medical Sciences*, 115(3), 210-216.
- Price, B. (2009). Body image in adolescents: insights and implications. *Paediatric Care*, 21(5), 38-44.
- Prignot, J. J., Sasco, A. J., Poulet, E., Gupta, P. C., Aditama, T. Y. (2008). Alternative forms of tobacco use [Review Article]. *The International Journal of Tuberculosis and Lung Disease*, 12(7), 718-727.
- Primack, B. A., Sidani, J., Agarwal, A. A., Shadel, W. G., Donny, E. C., et al. (2008). Prevalence of and Associations with Waterpipe Tobacco Smoking among U.S. University Students *Annals of Behavioral Medicine*, 36(1), 81-86.
- Primack, B. A., Switzer, G. E., Dalton, M. A. (2007). Improving measurement of normative beliefs involving smoking among adolescents. *Archives of Pediatrics and Adolescent Medicine*, 161(5), 434.
- Primack, B. A., Walsh, M., Bryce, C., Eissenberg, T. (2009). Water-pipe tobacco smoking among middle and high school students in Arizona. *Pediatrics*, 123(2), e282.
- Radwan, G., Israel, E., El-Setouhy, M., Abdel-Aziz, F., Mikhail, N., et al. (2003). Impact of religious rulings (Fatwa) on smoking. *Journal of the Egyptian Society of Parasitology*, 33(3 Suppl), 1087-1101.
- Rahman, M. M., Ahmad, S. A., Karim, M. J., Chia, H. A. (2011). Determinants of smoking behaviour among secondary school students in Bangladesh. *Journal of Community Health*, 36(5), 831-838.
- Raji, M., Abubakar, I., Oche, M., Kaoje, A. (2013). Prevalence and determinants of cigarette smoking among in school adolescents in Sokoto metropolis, Northwest Nigeria. *International Journal of Tropical Medicine*, 8(3), 81-86.
- Ramji, R., Arnetz, J., Nilsson, M., Jamil, H., Norström, F., et al. (2015). Determinants of waterpipe use amongst adolescents in Northern Sweden: a survey of use pattern, risk perception, and environmental factors. *BMC Research Notes*, 8(1), 441.
- Rao, S., Aslam, S. K., Zaheer, S., Shafique, K. (2014). Anti-smoking initiatives and current smoking among 19,643 adolescents in South Asia: findings from the Global Youth Tobacco Survey. *Harm Reduction Journal*, 11(1), 1.
- Rastam, S., Ward, K. D., Eissenberg, T., Maziak, W. (2004). Estimating the beginning of the waterpipe epidemic in Syria. *BMC Public Health*, 4(1), 32.

- RCP. (2010). Passive Smoking and Children. A report of the Tobacco Advisory Group of the Royal College of Physicians. London: Royal College of Physicians (RCP).
- Reda, A. A., Moges, A., Yazew, B., Biadgilign, S. (2012). Determinants of cigarette smoking among school adolescents in eastern Ethiopia: a cross-sectional study. *Harm Reduction Journal*, 9(1), 1.
- Reid, J., Manske, S., Leatherdale, S. (2008). Factors related to adolescents' estimation of peer smoking prevalence. *Health Education Research*, 23(1), 81-93.
- Reveles, C. C., Segri, N. J., Botelho, C. (2013). Factors associated with hookah use initiation among adolescents. *Jornal de Pediatria*, 89(6), 583-587.
- Rice, V. H., Templin, T., Hammad, A., Weglicki, L., Jamil, H., et al. (2007). Collaborative Research of Tobacco Use and Its Predictors in Arab and Non-Arab American 9 th Graders. *Ethnicity and Disease*, 17(2), 19.
- Rice, V. H., Weglicki, L. S., Templin, T., Hammad, A., Jamil, H., et al. (2006). Predictors of Arab American adolescent tobacco use. *Merrill-Palmer quarterly (Wayne State University. Press)*, 52(2), 327.
- Rimal, R. N., Real, K. (2003). Understanding the influence of perceived norms on behaviors. *Communication Theory*, 13(2), 184-203.
- Ringlever, L., Otten, R., de Leeuw, R. N., Engels, R. C. (2010). Effects of parents' education and occupation on adolescent smoking and the mediating role of smoking-specific parenting and parent smoking. *European Addiction Research*, 17(2), 55-63.
- Rodriguez, O. G., Vazquez, R. S., Gomez, F. J. S., Villa, R. S., Hervas, E. S. (2011). Psychosocial risk factors for adolescent smoking: A school-based study. *International Journal Of Clinical And Health Psychology*, 11(1), 23-33.
- Roohafza, H., Heidari, K., Alinia, T., Omid, R., Sadeghi, M., et al. (2015). Smoking motivators are different among cigarette and waterpipe smokers: The results of ITUPP. *Journal of Epidemiology And Global Health*, 5(3), 249-258.
- Roohafza, H., Sadeghi, M., Shahnam, M., Shokouh, P., Teimori, S., et al. (2013). Social norms of cigarette and hookah smokers in Iranian universities. *ARYA Atherosclerosis*, 9(1), 45.
- Rosenberg, M. (1965). The measurement of self-esteem. *Society and the adolescent self image*, 297-307.
- Rosenburg, M. (1965). Society and the adolescent self-image. *Princeton, NJ: Princeton University*.
- Roskin, J., Aveyard, P. (2009). Canadian and English students' beliefs about waterpipe smoking: a qualitative study. *BMC Public Health*, 9(1), 10.

- Rudatsikira, E., Abdo, A., Muula, A. (2007). Prevalence and determinants of adolescent tobacco smoking in Addis Ababa, Ethiopia. *BMC Publ Health*, 7(176), 1-6.
- Saade, G., Jaoude, S. A., Afifi, R., Warren, C., Jones, N. (2008). Patterns of tobacco use: results from the 2005 Global Youth Tobacco Survey in Lebanon. *Eastern Mediterranean Health Journal*, 14(6).
- Saari, A. J., Kentala, J., Mattila, K. J. (2015). Weaker Self-Esteem in Adolescence Predicts Smoking. *BioMed Research International*, 2015.
- Sadiq, M. A., Parekh, M. A., Zubairi, A. B. S., Frossard, P. M., Khan, J. A. (2012). Cross-sectional study identifying forms of tobacco used by Shisha smokers in Pakistan. *Journal of the Pakistan Medical Association*, 62(2), 192.
- Samet, J. M., Yoon, S.-Y. (2010). *Gender, women and the tobacco epidemic*: World Health Organization.
- Sasco, A. J., Kleihues, P. (1999). Why can't we convince the young not to smoke? *European Journal of Cancer*, 35(14), 1933-1940.
- Satcher, D. (2001). Women and smoking. *A Report of the Surgeon General-2001. United States Department of Health and Human Services, National Centers for Chronic Disease Prevention and Health Promotion*.
- Scal, P., Ireland, M., Borowsky, I. W. (2003). Smoking among American adolescents: a risk and protective factor analysis. *Journal of Community Health*, 28(2), 79-97.
- Schultz, H., Ezzat, A., Allam, A., Gray, A. (1998). Smoking and health: new insights and recent developments. *Annals of Saudi Medicine*, 18, 1-5.
- Shafey, O. (2007). D. Global Epidemiology and Health Hazards of Tobacco Use: Arab World Patterns. *Ethnicity and Disease*, 17(2), 13-15.
- Shafey, O., Fernández, E., Thun, M., Schiaffino, A., Dolwick, S., et al. (2004). Cigarette advertising and female smoking prevalence in Spain, 1982–1997. *Cancer*, 100(8), 1744-1749.
- Shakib, S., Mouttapa, M., Johnson, C. A., Ritt-Olson, A., Trinidad, D. R., et al. (2003). Ethnic variation in parenting characteristics and adolescent smoking. *Journal of Adolescent Health*, 33(2), 88-97.
- Shihadeh, A. (2003). Investigation of mainstream smoke aerosol of the argileh water pipe. *Food and Chemical Toxicology*, 41(1), 143-152.
- Shihadeh, A., Saleh, R. (2005). Polycyclic aromatic hydrocarbons, carbon monoxide, "tar", and nicotine in the mainstream smoke aerosol of the narghile water pipe. *Food and Chemical Toxicology*, 43(5), 655-661.
- SIDMOE. (2012). Statistical summary of female schools in jeddah (2012-2013), Saudi Ministry of Education (SIDMOE). The General Directorate of Education in

Jeddah, Department of Statistical Information: Ministry of Education, Saudi Arabia.

- Simons-Morton, B. G. (2004). The protective effect of parental expectations against early adolescent smoking initiation. *Health Education Research, 19*(5), 561.
- Simons-Morton, B. G., Farhat, T. (2010). Recent findings on peer group influences on adolescent smoking. *The Journal of Primary Prevention, 31*(4), 191-208.
- Singh, P. N., Neergaard, J., Job, J. S., El Setouhy, M., Israel, E., et al. (2012). Differences in health and religious beliefs about tobacco use among waterpipe users in the rural male population of Egypt. *Journal of Religion and Health, 51*(4), 1216-1225.
- Siziya, S., Muula, A., Rudatsikira, E. (2008). Prevalence and correlates of current cigarette smoking among adolescents in East Timor-Leste. *Indian Pediatrics, 45*(12).
- Smith-Simone, S., Maziak, W., Ward, K. D., Eissenberg, T. (2008). Waterpipe tobacco smoking: knowledge, attitudes, beliefs, and behavior in two US samples. *Nicotine & Tobacco Research, 10*(2), 393.
- Smith, B. N., Bean, M. K., Mitchell, K. S., Speizer, I. S., Fries, E. A. (2007). Psychosocial factors associated with non-smoking adolescents' intentions to smoke. *Health Education Research, 22*(2), 238.
- Smith, J. R., Novotny, T. E., Edland, S. D., Hofstetter, C. R., Lindsay, S. P., et al. (2011). Determinants of hookah use among high school students. *Nicotine & Tobacco Research, 13*(7), 565-572.
- Smoking, E. U. S. G. s. A. C. o., Health. (1964). Smoking and health: report of the Advisory Committee to the Surgeon General of the public health service: US Public Health Service.
- Song, A. V., Morrell, H. E., Cornell, J. L., Ramos, M. E., Biehl, M., et al. (2009). Perceptions of smoking-related risks and benefits as predictors of adolescent smoking initiation. *American Journal of Public Health, 99*(3), 487-492.
- Soteriades, E. S., DiFranza, J. R. (2003). Parent's socioeconomic status, adolescents' disposable income, and adolescents' smoking status in Massachusetts. *American Journal of Public Health, 93*(7), 1155.
- Stevenson, A., Waite, M. (2011). *Concise Oxford English Dictionary*: Oxford University Press.
- Su, X., Li, L., Griffiths, S. M., Gao, Y., Lau, J. T., et al. (2015). Smoking behaviors and intentions among adolescents in rural China: The application of the Theory of Planned Behavior and the role of social influence. *Addictive Behaviors, 48*, 44-51.

- Sullivan, K. M., Bottorff, J., Reid, C. (2011). Does mother's smoking influence girls' smoking more than boys' smoking? A 20-year review of the literature using a sex-and gender-based analysis. *Substance Use and Misuse*, 46(5), 656-668.
- Sussman, S. (2002). Effects of sixty six adolescent tobacco use cessation trials and seventeen prospective studies of self-initiated quitting. *Tobacco Induced Diseases*, 1(1), 35-81.
- Tahlil, T., Coveney, J., Woodman, R. J., Ward, P. R. (2013). Exploring Recommendations for an Effective Smoking Prevention Program for Indonesian Adolescents. *Asian Pacific Journal of Cancer Prevention*, 14(2), 865-871.
- Tamim, H., Al-Sahab, B., Akkary, G., Ghanem, M., Tamim, N., et al. (2007). Cigarette and nargileh smoking practices among school students in Beirut, Lebanon. *American Journal of Health Behavior*, 31(1), 56-63.
- Tamim, H., Terro, A., Kassem, H., Ghazi, A., Khamis, T. A., et al. (2003). Tobacco use by university students, Lebanon, 2001. *Addiction*, 98(7), 933-939.
- Taouk, M., Lovibond, P., Laube, R. (2013). Psychometric properties of an Arabic version of the Depression Anxiety Stress Scales. Report for New South Wales Transcultural Mental Health Centre, Cumberland Hospital, Sydney. : Retrieved from <http://www2.psy.unsw.edu.au/dass/Arabic/Arabic%20DASS%20Report.doc>.
- Thomas, R., Perera, R. (2007). School-based programmes for preventing smoking (Review).
- Topa, Moriano. (2010). Theory of planned behavior and smoking: Meta-analysis and SEM model. *Substance Abuse and Rehabilitation*, 1, 23-33.
- Turner, L., Mermelstein, R., Flay, B. (2004). Individual and contextual influences on adolescent smoking. *Annals of the New York Academy of Sciences*, 1021(1), 175-197.
- Turner, L. R., Veldhuis, C. B., Mermelstein, R. (2005). Adolescent smoking: Are infrequent and occasional smokers ready to quit? *Substance Use and Misuse*, 40(8), 1127-1137.
- Tyas, S. L., Pederson, L. L. (1998). Psychosocial factors related to adolescent smoking: a critical review of the literature. *Tobacco Control*, 7(4), 409.
- UNDP. (2010). *Saudi Arabia: Millennium development goals*. UN Development Program. Ministry of Economy and Planning. ISSN 1658-2705.
- USDHHS. (2004). *The Health Consequences of Smoking: a Report of The Surgeon General*. Atlanta, GA: US Department of Health and Human Services, Centers for Disease Control and Prevention, National Center for Chronic Disease Prevention and Health Promotion, Office on Smoking and Health, 62.

- USDHHS. (2012). Preventing tobacco use among youth and young adults: A report of the Surgeon General *Atlanta, GA: US Department of Health and Human Services, Centers for Disease Control and Prevention, National Center for Chronic Disease Prevention and Health Promotion, Office on Smoking and Health* (Vol. 2).
- Usmanova, G.,Mokdad, A. H. (2013). Results of the Global Youth Tobacco Survey and implementation of the WHO Framework Convention on Tobacco Control in the WHO Eastern Mediterranean Region (EMR) countries. *Journal of Epidemiology and Global Health*, 3(4), 217-234.
- van Beem, M. (2011). *Adolescents' susceptibility to imitate the smoking behaviour of peers: the moderating effect of self-esteem and self-efficacy*. Bachelor thesis, Utrecht University Repository.
- Varsano, S., Ganz, I., Eldor, N.,Garenkin, M. (2003). Water-pipe tobacco smoking among school children in Israel: frequencies, habits, and attitudes. *Harefuah*, 142(11), 736.
- Verhulst, F. C. (2001). Community and epidemiological aspects of anxiety disorders in children. *Anxiety disorders in children and adolescents: Research, assessment and intervention*, 273-292.
- Voorhees, C. C., Ye, C., Carter-Pokras, O., MacPherson, L., Kanamori, M., et al. (2011). Peers, tobacco advertising, and secondhand smoke exposure influences smoking initiation in diverse adolescents. *American Journal of Health Promotion*, 25(3), e1-e11.
- Wahabi, H. A., Alzeidan, R. A., Fayed, A. A., Mandil, A., Al-Shaikh, G., et al. (2013). Effects of secondhand smoke on the birth weight of term infants and the demographic profile of Saudi exposed women. *BMC Public Health*, 13(1), 341.
- Wang, M., Zhong, J.-M., Fang, L.,Wang, H. (2016). Prevalence and associated factors of smoking in middle and high school students: a school-based cross-sectional study in Zhejiang Province, China. *British Medical Journal*, 6(1), e010379.
- Ward, K. D., Eissenberg, T., Gray, J. N., Srinivas, V., Wilson, N., et al. (2007). Characteristics of US waterpipe users: a preliminary report. *Nicotine & Tobacco Research*, 9(12), 1339-1346.
- Ward, K. D., Hammal, F., VanderWeg, M. W., Eissenberg, T., Asfar, T., et al. (2005). Are waterpipe users interested in quitting? *Nicotine & Tobacco Research*, 7(1), 149-156.
- Warren, C. W., Asma, S., Lee, J., Lea, V.,Mackay, J. (2009). Global Tobacco Surveillance System. The GTSS Atlas. *Atlanta, Georgia, Centers for Disease Control and Prevention*.
- Warren, C. W., Jones, N. R., Eriksen, M. P.,Asma, S. (2006). Patterns of global tobacco use in young people and implications for future chronic disease burden in adults. *The Lancet*, 367(9512), 749-753.

- Warren, C. W., Jones, N. R., Peruga, A., Chauvin, J., Baptiste, J. P., et al. (2008). Global youth tobacco surveillance, 2000-2007. *MMWR. Surveillance summaries: Morbidity and mortality weekly report. Surveillance summaries/CDC*, 57(1), 1-20.
- Watad, W., Sukhera, J., Shushan, S., Kazlak, M., Skinner, H. A., et al. (2009). Water pipe smoking: effects, attitudes and directions. *Journal of Smoking Cessation*, 4(1), 18-25.
- Weglicki, L. S., Templin, T. N., Rice, V. H., Jamil, H., Hammad, A. (2008). Comparison of Cigarette and Water-Pipe Smoking by Arab and Non Arab-American Youth. *American Journal of Preventive Medicine*, 35(4), 334-339.
- Weiss, J. W., Palmer, P. H., Chou, C.-P., Mouttapa, M., Johnson, C. A., et al. (2008). Association between psychological factors and adolescent smoking in seven cities in China. *International Journal of Behavioral Medicine*, 15(2), 149-156.
- WHO. (2005). Waterpipe Tobacco Smoking: Health Effects, Research Needs and Recommended Actions by Regulators. *World Health Organization, Geneva, Switzerland*.
- WHO. (2008). *WHO Report on The Global Tobacco Epidemic, 2008: the MPOWER Package*: World Health Organization.
- WHO. (2009). Who report on the global tobacco epidemic, 2009: Implementing smoke-free environments Geneva: World Health Organization, Switzerland.
- WHO. (2011a). *WHO Report on The Global Tobacco Epidemic, 2011: Warning about The Dangers of Tobacco*, . World Health Organization.
- WHO. (2011b). WHO smoke-free city case study: Mecca and Medina, Saudi Arabia. World Health Organization.
- WHO. (2012). *2012 global progress report on implementation of the WHO Framework Convention on Tobacco Control*: World Health Organization.
- WHO. (2013a). WHO Report on The Global Tobacco Epidemic, 2013: Enforcing Bans on Tobacco Advertising, Promotion and Sponsorship. World Health Organization.
- WHO. (2013b). *World health statistics 2013*: World Health Organization.
- WHO. (2014). *World Health Statistics 2014*: World Health Organization.
- WHO. (2015a). *WHO Report on The Global Tobacco Epidemic, 2015: Raising taxes on tobacco*. World Health Organization.
- WHO. (2015b). *World Health Statistics 2015*: World Health Organization.
- Wilkinson, A. V., Waters, A. J., Vasudevan, V., Bondy, M. L., Prokhorov, A. V., et al. (2008). Correlates of susceptibility to smoking among Mexican origin youth

- residing in Houston, Texas: a cross-sectional analysis. *BMC Public Health*, 8(1), 337.
- Woodruff, S. I., Lee, J., Conway, T. L. (2006). Smoking and quitting history correlates of readiness to quit in multiethnic adolescents. *American Journal of Health Behavior*, 30(6), 663-674.
- Wu, C. S., Wong, H. T., Shek, C. H., Loke, A. Y. (2014). Multi-dimensional self-esteem and substance use among Chinese adolescents. *Substance Abuse Treatment, Prevention, and Policy*, 9(1), 42.
- Yu, S., Koplan, J., Eriksen, M. P., Yao, S., Redmon, P., et al. (2015). The Effects of Antismoking Messages From Family, School, and Mass Media on Smoking Behavior and Smoking Intention Among Chinese Adolescents. *Journal of Health Communication*, 20(11), 1255-1263.
- Yue, Y., Hong, L., Guo, L., Gao, X., Deng, J., et al. (2015). Gender differences in the association between cigarette smoking, alcohol consumption and depressive symptoms: a cross-sectional study among Chinese adolescents. *Scientific reports*, 5.
- Zapata, L. B., Forthofer, M. S., Eaton, D. K., Brown, K. M. C., Bryant, C. A., et al. (2004). Cigarette use in 6th through 10th grade: the Sarasota County demonstration project. *American Journal of Health Behavior*, 28(2), 151-165.
- Zhang, B., Cartmill, C., Ferrence, R. (2008). The role of spending money and drinking alcohol in adolescent smoking. *Addiction*, 103(2), 310-319.

BIODATA OF STUDENT

Alotaibi, Amani Awwadh F was born on June 7, 1979 in Jeddah, Saudi Arabia. In 2001, she obtained her Bachelor of Science degree in Biology, Faculty of Sciences, King Abdul Aziz University in Jeddah. After graduation, she started to work as a high school teacher in several private schools of Jeddah (2001 to 2007). In 2007, she moved to Kuala Lumpur on a scholarship from the Ministry of Higher Education in Saudi Arabia. She enrolled in 2008 for her graduate study and in April, 2009, she obtained her master of medical science in public health from Department of Public Health, Faculty of Medicine, University Malaya (UM). She continued on with her graduate studies in Malaysia. In December 2009, she enrolled in PhD program in Community Health Department, Faculty of Medicine and Health science, Universiti Putra Malaysia under the supervision of Dato Dr. Faisal Ibrahim. During PhD program, she participated with abstract (Smoking Behaviours among Saudi Female School Adolescents in Jeddah: Like Mother, Like Daughter) in family health conference women and health in 2015. She participated with two abstracts in 4th Asia Pacific Conference on Public Health 2015. She has published paper in Malaysian Journal of Medicine and Health Sciences, entitled Prevalence of Tobacco Use and its Socio-demographic Determinants among Saudi Female School Adolescents in Jeddah.

LIST OF PUBLICATIONS

- Al-Otaibi AA, Ibrahim FB, Rampal L, Hassan SA, Ibrahim N. Prevalence of Tobacco Use and its Socio-demographic Determinants among Saudi Female School Adolescents in Jeddah. *Malaysian Journal of Medicine and Health Sciences*. 2015;11(1):39-48.
- Al-Otaibi AA, Ibrahim FB, Rampal L, Hassan SA, Ibrahim N. Prevalence and predictors of ever water pipe smoking among female school adolescents in Jeddah, Saudi Arabia. Paper presented at the 4th Asia Pacific Conference on Public Health; Kuantan, Malaysia: *The Medical Journal of Malaysia* 2015;70(1):32-3.
- Al-Otaibi AA, Ibrahim FB, Rampal L, Hassan SA, Ibrahim N. Prevalence and psychosocial determinants of tobacco use among adolescent female students in Jeddah, Saudi Arabia. Paper presented at the 4th Asia Pacific Conference on Public Health; Kuantan, Malaysia: *The Medical Journal of Malaysia* 2015;70 (1):32-3.