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Behavioral factors influencing tobacco smoking initiation and quitting in Saudi Arabia

Abstract

Introduction: Tobacco smoking is strongly associated with high mortality and morbidity worldwide. Tobacco Smoking initiation or quitting depends on several behavior, social, and occupational factors. Therefore, the aim of this study was to assess the behavioral, social and environmental factors that may contribute to initiation or quitting of tobacco smoking in the Kingdom of Saudi Arabia (KSA).

Methodology: A total of 174 Saudi volunteers living in the city of Hail, Northern KSA were investigated. Of the 174 study subjects, 101 were current tobacco smokers and 73 were non-tobacco users.

Results: Out of the 99 respondents tobacco users, 77/99(77.8%) were found to smoke cigarette and 22/99(22.2%) were smoking shisha. Out of the 99 smokers, 58/99(58.6%), 70/99(70.7%), and 52/99(52.5%), used to smoke at home, work place and around family members, respectively.

Conclusion: It is verified that parent tobacco usage, second-hand smoke exposure resulting from occupational target such as inside home smoking, and work place smoking are strongly associated with tobacco initiation. More research is needed to explore the suitable modalities for tobacco quitting in KSA.

Keywords: tobacco smoking, cigarette smoking, tobacco initiation, Saudi Arabia

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Ibrahim Khalil AL Ibrahim,[1] Abdullah Faraj AlShammari,[1] Meshari Fraih Alshammari,[2] Abdulrahman Mohammed Alqunun,[2] Khaled Homoud Almuhaihi,[2] Abdulaziz Rasheed Altamimi,[2] Hussain Gadelkarim Ahmed[2,3]

[1]Department of Dentistry, University of Hail, Kingdom of Saudi Arabia
[2]Department of Medicine, University of Hail, Kingdom of Saudi Arabia
[3]Department of Molecular Diagnostic sand Personalized Therapeutics Unit, University of Hail, Kingdom of Saudi Arabia

Correspondence: Hussain Gadelkarim Ahmed, Department of Medicine, University of Hail, Kingdom of Saudi Arabia, Tel +966502609300, Email hussaingad1972@yahoo.com

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Introduction

Tobacco use is a significant public health problem worldwide leading to pulmonary diseases,[1] cardiovascular diseases[2] and various cancers.[3] Tobacco consumption, particularly smoking, is the leading avoidable risk factor responsible of about six million deaths worldwide annually. This six million includes about 6,00,000 deaths are also predictable to die from the effects of second-hand smoke. While usually tobacco use is associated with ill-health, disability, and death from non-communicable chronic diseases, tobacco smoking is also connected with a greater risk of death from communicable disease.[4] Although tobacco smoking is decreasing worldwide and in several countries, the prevalence of tobacco smoking seems to be growing according to WHO reports in Eastern Mediterranean region as well as the African Region.[5] Approximately 90% of tobacco smokers start tobacco smoking before the age of 18years, with nearly 100 000 young youths initiating smoking every day.[6] Due to the powerfully addictive nature of tobacco consumption, tobaccos smoking during adolescence elude the person to continue during the adulthood.[7] Exposure to second-hand tobacco smoke amongst adolescents is an essential contributing factor. Second-hand smoke estimated for about 3,31,000 deaths in 2013[8] and up to 28% of all deaths caused by second-hand smoke happening in children.[9] The prevalence rates of tobacco smoking in the Kingdom of Saudi Arabia (KSA) were reported in several studies ranging from 2.4% to 52.3%.[10,11] Although this prevalence varies through different age groups, it was reported that 20%–50% of Saudi tobacco smokers start smoking as early as 15years of age.[12] The prevalence of smoking among males is ranging from 13% to 38% (median=26.5%), whereas in females it is ranging from 1% to 16% (median=9%).[10] Assessment of the full impact of tobacco use and tobacco smoking in particular on population health, will definitely make a major input to the development of the public health hazard.[13] However, most studies from KSA in this context evaluated the epidemiologic factors rather than behavioral characteristics that lead to initiation or quitting of tobacco smoking. Therefore, the present study was focusing on the assessment of behavioral, social, and environmental factors that may contribute to commencing or quitting tobacco smoking in KSA.

Materials and methods

In this a case control cross sectional study, a total of 174 Saudi volunteers living in the city of Hail, Northern KSA were investigated. Of the 174 study subjects, 101 were current tobacco smokers (ascertained as cases) and 73 were non tobacco users (ascertained as controls). A purposeful questionnaire was designed to obtain essential variables regarding behavioral factors. The most important variables included in the questionnaire were, demographical characteristics such as: tobacco use habits, number of cigarette per day, Shisha smoking (it is a water-pipe, popular in many Arab countries, in which fruit-scented tobacco is burnt using coal, passed through an ornate water vessel and inhaled through a hose.), regular period of smoking in years, age when starting smoking, did you smoke at home, did you smoke at work place, did you smoke around your family members, are your parent smokers, have you accompanied person smoker (friend, co-worker), people use to smoke inside my home, people use to smoke inside my car, feelings of smokers about changing their smoking habits including:

a. Plan to quit smoking.

b. How important is it for you to change your tobacco usage?

c. How confident are you that you could change your tobacco usage?

Data analysis

Statistical Package for Social Sciences (SPSS version 16) was used for analysis and to perform Pearson Chi-square test for statistical significance (P value). The 95% confidence level and confidence intervals were used. P value less than 0.05 was considered statistically significant.

Ethical consent

Each participant was asked to sign a written ethical consent during the questionnaire's interview, before the obtaining of the specimen. The informed ethical consent form was designed and approved by the ethical committee of the College of Medicine (University of Hail, KSA) Research Board.

Results

In this study 173 individuals were included their ages ranging from 13 to 66years old with a mean age 30.2years. Out of the 173 study subjects, 121/173(69.9%) were males and 52/173(30.1%) were females. The males' females' ratio was 2.33: 1.00. Of the 121 males, 70/121(57.6%) were tobacco smokers and 51\121 (42.4%) were non-tobacco users. Of the 52 females 31/52(59.6%) were tobacco smokers and 21/52(40.4%) were non-tobacco users. With regard to age most of the study subjects were found among the age range 26-35years. The age distribution is relatively similar among males and females with the exception of age group 26-35years, most of them were males as shown in Table 1 & Figure 1. For the level of education the majority of the participants were at secondary level followed by university constituting 89/168(53%) and 59/168(35%), respectively, as indicated in Table 1.

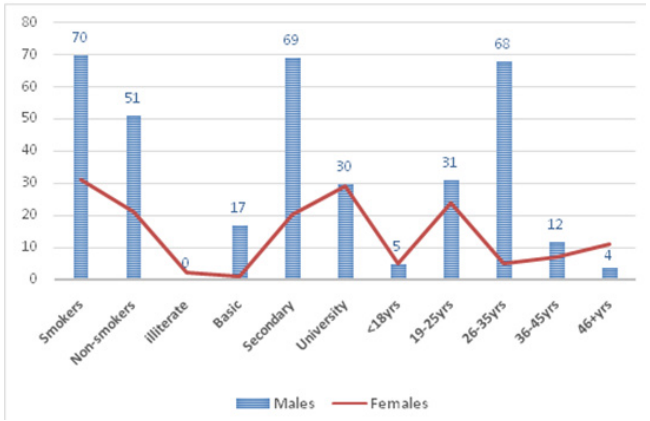

Figure 1 Description of the study subjects by demographic characteristics and tobacco use habit.

For the relevant smoked type of tobacco, 77/99(77.8%) were found to smoke cigarette and 22/99(22.2%) were smoking shisha. Of the 77 cigarette smokers 60/77(80%) were males and 17/77(20%) were females. Of the 99 respondents smokers, 43/99(43.4%) used to smoke ≤5 cigarettes per day, 27/99(27.3%) smoke 6-10 cigarettes per day, 20/99(20.2%) smoke 11-20 cigarettes per day and 9/99(9.1%) smoke more than 21 cigarettes per day. The great majority of males use to smoke 6-10 cigarettes per day, hence most females use to smoke ≤5 cigarettes per day, as indicated in Table 2. Most of the smokers started smoking at the age range between 19-25years, followed by 16-18, 26+ and ≤15years, representing 39/99(%), 28/99(%), 19/99(%) and 13/99(%), in this order. Most males started smoking at the age range 19-25. Whereas most females started at age range 16-18years, as indicated in Table 2. However, when calculating the percentages of these variables within each gender, different proportions can be observed as shown in Figure 2.

Table 1 Distribution of the study population by demographical characteristics and tobacco use habit

Variable	Category	Males	Females	Total
Tobacco use	Yes	70	31	101
	No	51	21	72
	Total	121	52	173
Age in years	<18	5	5	10
	19-25	31	24	55
	26-35	68	5	73
	36-45	12	7	19
	46+	4	11	15
	Total	120	52	172
Level of Education	illiterate	0	2	2
	Basic	17	1	18
	Secondary	69	20	89
	University	30	29	59
	Total	116	52	168

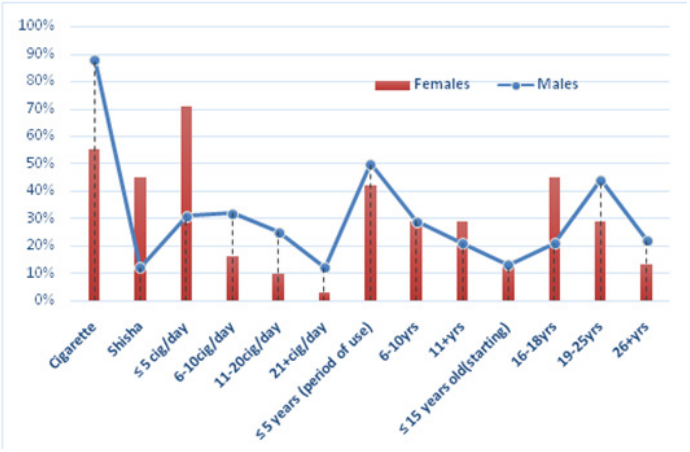

Figure 2 Description of study subjects tobacco smoking habitual practices within each gender group.

Out of 99 smokers, 58/99(58.6%), 70/99(70.7%), and 52/99(52.5%), used to smoke at home, work place and around your family members, respectively. Of the 58 smokers at home, 30/58(51.7%) were males and 28/58(48.3%) were females. The odd ratio (OR) and 95% confidence interval (95% CI) associated with adherence of females smoking at home was OR (95% CI)=0.08(0.02-0.31), P=0.0002. Of the 70 smokers at work place, 43/70(61.4%) were males and 27/70(38.6%) were females. The risk associated with adherence of females smoking at home was OR (95% CI)=0.25(0.08-0.81), P=0.02. Of the 52 smokers at work place, 24/52(46%) were males and 28/52(53.8%) were females. The risk associated with adherence of females smoking at home was OR (95% CI)=0.05(0.02-0.21), P<0.0001, as indicated in Table 3 & Figure 3.

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Table 2 Distribution of study subjects by tobacco smoking habitual practices and gender

Variable	Category	Males	Females	Total
Tobacco type	Cigarette	60	17	77
	Shisha	8	14	22
	Total	68	31	99
Number of cigarette per day	≤5 cig/day	21	22	43
	1-10	22	5	27
	11-20	17	3	20
	16-20	8	1	9
	Total	68	31	99
Regular period of smoking in years	≤5years	34	13	47
	1-10	20	9	29
	11+	14	9	23
	Total	68	31	99
Age when starting smoking	≤15years	9	4	13
	16-18	14	14	28
	19-25	30	9	39
	26+	15	4	19
	Total	68	31	99

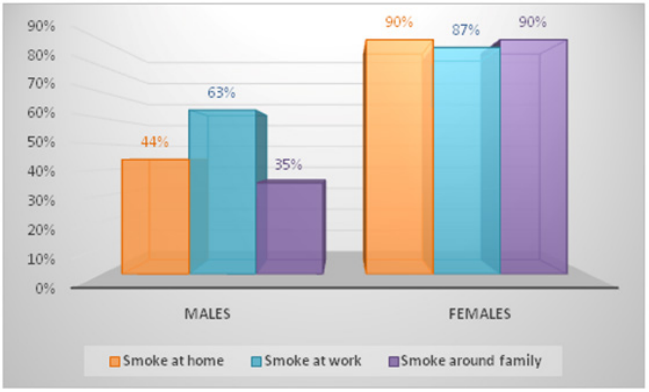

Figure 3 Description of study subjects by tobacco smoking community practices and gender.

Of the 99 smokers, 77/99(77.8%), 15/99(15.2%), 50/99(50.5%), 27/99(27.3%), 55/99(55.6%) and 53/99(53.5%), have either parent smokers, friend smoker, Family member smoker, co-worker smoker, permit people to smoke inside his home, or permit people to smoke inside his car, in this order. Of the 77 having parent smoker, 48/77(62.3%) were males and 29/77(37.7%) were females. The presence of parent smoker was significantly associated with getting smoker P<0.01. Of the 15 having friend smoker, 13/15(86.7%) were males and 3/15(13.3%) were females. The presence of friend smoker was significantly associated with becoming smoker P<0.008. Of the 50 persons having smoker in the family, 29/50(52.7%) were males and 21/50(42%) were females. The presence of smoker in the family was slightly significantly associated with becoming smoker P<0.06. Of the 27 persons having co-worker smoker, 19/27(70%) were males and 8/27(30%) were females. The presence of co-worker smoker was insignificantly associated with becoming smoker P<0.5. Of the 55 persons who permit people to smoke inside their homes, 27/55(49%) were males and 28/55(51%) were females. Permit people to smoke inside their homes was significantly associated with becoming smoker P< 0.0001. Of the 53 persons who permit people to smoke inside their car, 24/53(45%) were males and 29/53(55%) were females. Permit people to smoke inside their cars was significantly associated with becoming smoker P<0.001. Moreover, the percentages of these variables may differ when calculating then with males or females group, as shown in Table 4 & Figure 4.

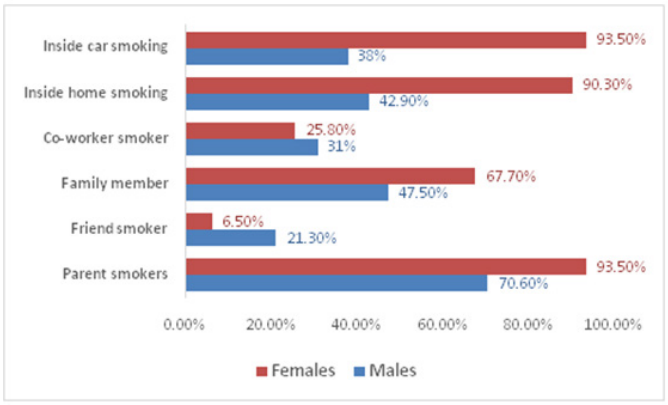

Figure 4 Description of study subjects by adherent community practices and gender.

Out of 97 responded to the question of the plan to quit smoking, 25/97(25.8%) have plans to quit within one year, of whom 19/25(76%) were males, and the remaining 6/25(24%) were females. In regard to the question "How important is it for you to change your tobacco use?" 6/99(6%), 7/99(7%) and 86/99(87%) indicated probably important, important and very important category, respectively. In regard to the question "How confident are you that you could change your tobacco use?" 7/99(7.2%), 31/99(32%) and 61/979(62.8%) indicated probably confident, confident and very confident category, respectively. In regard to the question "How ready are you to change" 14/99(14.2%), 17/97(17.1%) and 68/99(68.7%) indicated probably ready, ready and very ready category, respectively, as indicated in Table 5. Furthermore, the percentages of these variables may differ when calculating within each males or females group, as shown in Figure 5.

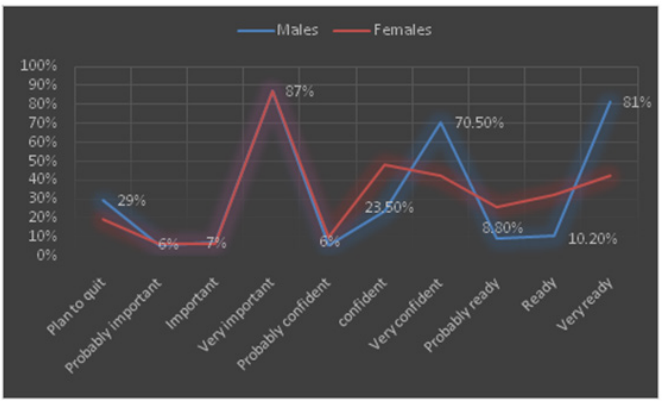

Figure 5 Feelings of smokers about changing their smoking habits within males and females.

In regard to the non-tobacco users (control group) who were included to assess the risk of factors such as: having parent smokers, friend smoker, Family member smoker, co-worker smoker, permit people to smoke inside his home, permit people to smoke inside his car, in commencing the habit of smoking. All these factors were found to be significantly associated with initiation of smoking (P <0.0001).

Table 3 Distribution of study subjects by tobacco smoking community practices and gender

Variable	Category	Males	Females	Total	OR (95%CI), P Value
Did you smoke at home	Yes	30	28	58	0.08(0.02- 0.31), P = 0.0002
	No	38	3	41	
	Total	68	31	99	
Did you smoke at work place	Yes	43	27	70	0.25(0.08- 0.81), P = 0.02
	No	25	4	29	
	Total	68	31	99	
Did you smoke around your family members	Yes	24	28	52	0.05(0.02- 0.21), P < 0.0001
	No	44	3	47	
	Total	68	31	99	

Table 4 Distribution of study subjects by adherent community practices and gender

Variable	Category	Males	Females	Total
Are your parent smokers	Yes	48	29	77
	No	20	2	22
	Total	68	31	99
	OR (95%CI)	4(1.07-16.02)	0.67(0.55-0.85)	P value=0.01
Accompanied person smoker	*Friends*	13	2	15
	OR (95%CI)	3(0.82- 18.65)	0.25(0.05-1.2)	P value=0.008
	Family members	29	21	50
	OR (95%CI)	0.4(0.17- 1.1)	2(0.93- 5.7)	P value=0.06
	Co-workers	19	8	27
	Total	61	31	92
	OR (95%CI)	1.3(0.5- 3.4)	0.7(0. 3- 2.02)	0.5
People use to smoke inside my home	Yes	27	28	55
	No	36	3	39
	Total	63	31	94
	OR (95%CI)	0.1(0.03-0.34)	12(3.4- 45.2)	P value=0.0001
People use to smoke inside my car	Yes	24	29	53
	No	39	2	41
	Total	63	31	94
	OR (95%CI)	0.04(0.01-0.19)	23(5.1-107.7)	P value=0.001

Table 5 Feelings of smokers about changing their smoking habits

Variable	Category	Males	Females	Total
Plan to quit smoking	Yes within one year	19	6	25
	No	47	25	72
	Total	66	31	97
How important is it for you to change your tobacco use?	Probably important	4	2	6
	Important	5	2	7
	Very Important	59	27	86
	Total	68	31	99

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Table Continued...

Variable	Category	Males	Females	Total
How confident are you that you could change your tobacco use?	Probably confident	4	3	7
	confident	16	15	31
	very confident	48	13	61
	Total	68	31	99
How ready are you to change?	Probably ready	6	8	14
	Very	7	10	17
	Very Ready	55	13	68
	Total	68	31	99

Discussion

Tobacco consumption is a worldwide epidemic, and the problem is changing to worse promptly as the tobacco trade infiltrates the developing world. There are 1.1billion adults (29% of the adult population) are current smokers,[14] and this number is likely to increase over the next decades. Although, the Saudi Ministry of Health initiated a national tobacco control program in 2002 with greater strengthened efforts after joining the World Health Organization (WHO) Framework Convention for Tobacco Control (FCTC) in 2005,[15] but still there a tremendous increased in the number of smokers in different part of the country.[16] Although indicators of tobacco use in KSA are better than for neighboring Middles Eastern countries, and high-income countries,[17] there is potential need to work toward better tobacco control strategies.

In the present study, our objective was to assess the behavioral factors that associated with tobacco smoking in KSA, focusing on individual habitual practice and perceptive factors involved in the initiation and quitting of tobacco use. The great majority of the smokers were males representing about 70%, and this might be due to the fact that smoking is a social stigma among Saudi community and most practices are hidden. Most studies from KSA have shown a low prevalence rate of females smokers compared to males.[10–17] For habitual practices, most individuals accustomed to cigarette smoking (80%) and only 20% were accustomed to shisha. For cigarette smokers, most of them accustomed to ≤5 cigarette per day (43.4%), particularly females. Similar findings were previously reported from Saudi Arabia.[15–18] In the current study, most males starting smoking at the age range 19-25years, hence, most females start at the age 16-18years. A recent study from KSA found that the mean age of smoking initiation was 19.1years (±6.5years) with 8.9 % of ever smokers starting before the age of 15years.[15] The present study indicated that, 58.6%, 70.7%, and 52.5%, used to smoke at home, work place, and around family members, respectively. Moreover, 55.6% and 53.5%, permit people to smoke inside their home, permit people to smoke inside their car, respectively. These are very high proportions of extended exposure to tobacco smoke. There are enough evidences regarding health risks posed by children's exposure to second-hand smoke. These evidences are highly meaningful if the public is aware of these risks and know how to limit childhood exposure. These findings suggest the prevalent shortage of awareness of the risks associated with environmental tobacco smoke. Furthermore, 77.8%, 15.2%, 50.5%, 27.3%, having parent smokers, friend smoker, Family member smoker, and co-worker smoker, in this order. Having parent smokers as well as family member smokers are significant factors that motivates smoking initiation. Several studies laminated to the fact that to prevent adolescents from becoming smokers, it is necessary to know factors that cause them to become susceptible to the habit of smoking. Personal, social and environmental factors are strongly correlated smoking initiation.[19] These facts may express our findings that all social and environmental variables were found to increase the likelihood of initiating smoking. In regard to having a plan to quit smoking, 25.8% had plans to quit within one year, and males were more likely to quit than females. This percentage was relatively low and so, frustrated. Most smokers do not plan to quit in the nearby period, making unmotivated smokers a key group to target in public health efforts. A recent similar study found that about 25% of smokers who recommended low quit motivation at baseline lowered their cigarette usage over the course of a year, whereas 3% escalated their cigarette usage and the majority of smokers (72%) kept a stable pattern. Understanding smoking growing challenges is critical in updating population-based tobacco policy modeling efforts and informing cessation orientation efforts that capitalize on realistic modifications in smoking rate over time.[20] Furthermore, in Saudi Arabia smoking prevalence was higher among married people, among uneducated people, and among those in certain occupations: manual workers, businessmen, army officers, and office workers regardless to the income.[21] The present study has few limitations; it's cross-sectional setting, limited associations of cases and controls. Numerous of the behavioral variables, were self-reported some of which were subjected to personal prestige biases. Despite with these limitations, this study has the merit of providing new course for orientation of future research in this context.

Conclusion

Tobacco consumption and exposure to second-hand smoke continue to be major public health concerns particularly among young Saudi citizens. It is verified that parent tobacco usage, second-hand smoke exposure resulting from occupational target such as inside home smoking, work place smoking are strongly associated with tobacco initiation. Establishing of rigorous tobacco control policy addressing all tobacco initiation factors may effectively reduce the burden tobacco initiation in KSA. Research is needed to explore the suitable modalities for tobacco quitting in KSA.

Acknowledgements

None.

Conflict of interest

The author declares no conflict of interest.

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