
**PREVALENCE AND FACTORS OF SMOKING AMONG THE SAUDI
YOUTH IN THE NORTHERN BORDER REGION: THE ROLE OF THE
TOBACCO CONTROL PROGRAM IN THE REGION**

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ABSTRACT

Smoking is the most important avoidable cause of premature morbidity and mortality in the world. The estimated annual death rate of 4.9 million people in 1999 is expected to rise to 10 million by the 2020s and 2030s, 7 million of which will occur in developing countries. The present study aims to determine the factors of smoking among the Saudi youth in the Northern Border Region of the Kingdom of Saudi Arabia, besides studying the impact of Smoking on expenses, savings and smoker sensitivity to price. Moreover, the study assessed the effectiveness of Tobacco Control Program. Across-Sectional study was conducted of 1022 among the secondary schools students 656 for males, Northern Border University students 139 for males, Northern Border University students 153 for females and 74 for café visitors. The qualitative data was collected from focus group discussions and interviews. Results revealed that prevalence of smokers was 24.7%, 38.1%, 9.8% and 70.3% for the four groups of youth respectively. The most common reason for initiating smoking among youth groups was being the frequent contact with others with following proportions: (65.5%) for secondary school students, (74.3%) for male university students, (82%) for café visitors. In contrast the most common reason for female university students to smoke was feeling comfort (41.7%). Regarding the effectiveness of the Tobacco Control Program (41.4%) of the overall smokers think that the program is effective. Smoking is high among the youth in the Northern Border

Region, Saudi Arabia. Interventions are needed to decrease the prevalence of smoking in Saudi Arabia.

Keywords: Control, Program, Prevalence, Youth, Saudi Arabia.

INTRODUCTION

Smoking is more prevalent globally among males than among females. In developing countries, it is estimated that about 48% of males and 7% of females are smokers. Most smokers start the habit during adolescence; less than 2% of them start smoking after their 22nd birthday. In Saudi Arabia, smoking is a leading cause of lung diseases and cancer deaths among Saudi males suggesting that cigarette smoking is becoming an important public health problem among the Saudi youth. Nevertheless, there are no statistics available about the current prevalence of cigarette smoking in the Northern Border Region of KSA. But the prevalence of smoking in adults in 2000 was reported as 11.6%, being higher among males (21.1%) than among females (5.2%) (Koura, 2011). Although there are many surveys addressing the prevalence of smoking in Saudi Arabia, most of these surveys end up with different conclusions, likely because there are no nationwide studies on the prevalence of tobacco smoking carried out in Saudi Arabia. Moreover, many studies did not follow a standardized protocol, sample size, or sample selection. Moreover, between 1987 and 2008 there were 34 studies conducted among school students, university students, adults, and other population groups in Saudi Arabia. According to these studies, the prevalence of current smoking among the Saudi population ranges from 2.4 to 52.9% with a median of (17.5%). The difference in prevalence among studies is due to the inclusion of different populations, using different criteria for current smoking, estimating the prevalence in different regions, and at different times. These weaknesses limit the generalization of the findings and increase the need for further studies in the community including people from both genders, all age groups and different socio-demographic backgrounds and from all cities of the kingdom. (Bassiony, 2009). In this present study the prevalence of smoking among the youth in the Northern Border Region is well calculated based on the criteria of inclusion of the young people from both genders with their different socio-demographic background and age group ranged between 15 to 24.

On the other hand, the prevalence of smoking among Saudi university students over the age of 18 has been investigated in several studies. These studies also did not follow a standardized protocol, and therefore showed changeability in the percentages, which ranged between 13–20% of male students and 9–11% of female students. The most recent survey, which used a modified version of GYTS, was conducted in 2010 at a university in Riyadh, Saudi Arabia and revealed an overall smoking prevalence of 14.5% (32.7% of male students and 5.9% of female students) (Al Ghbain, 2011).

Most of the accessible data in these studies covered age groups between 15 years and 25 years. However, to our knowledge, no a study on smoking among young people in the Northern Border Region of the Saudi Arabia has been reported to this date. This study was designed to fill this gap in knowledge, focusing on the prevalence and factors in addition to display the role of Tobacco Control Program in Arar city the capital of Northern Border Region in Saudi Arabia.

PROBLEM STATEMENT

This study investigates the phenomenon of smoking among Saudi youth in the Northern Border Region, Kingdom of Saudi Arabia. Smoking has become one of the most important causes of public health risks particularly among the youth. However, there are no accurate statistics available on the number of smokers or prevalence of smoking in the Northern Border Region, in addition, the

factors of smoking and methods of controlling are varied depending on the policies of the Tobacco Control Program and the quality of services it provides.

SIGNIFICANCE OF THE STUDY

The importance of this study lies in the type of information it provides to researchers, health practitioners, decision makers and society as a whole about the smoking related problems. The findings of the study may help decision makers to develop plans and policies to combat this negative phenomenon.

QUESTIONS OF THE STUDY

- a. What is the proportion of the smokers in the Northern Border Region?
- b. To what extent the Tobacco Control Program is effective in controlling smoking in the Northern Border Region?
- c. What are the factors of smoking among the youth in the region?
- d. What is the relationship between smoking and savings, expenses and price?

THE RESPONSE OF THE KINGDOM OF SAUDI ARABIA TO THE FRAMEWORK CONVENTION ON TOBACCO CONTROL PROGRAM

The Kingdom of Saudi Arabia ratified the World Health Organization's Framework Convention on Tobacco Control in 2005, thus it is considered the 65th country to do so. As a ratifying country has to ban tobacco advertising, taking measures to protect nonsmokers from second hand smoking, increase the cost of tobacco products, and make efforts to stop tobacco smuggling. The framework aims at preventing children from smoking and to help adults to stop the habit. The government has up to 5 years to amend its regulations in compliance with the treaty. The Gulf Cooperation Council proposed certain measures in 1987 to be implemented by all Gulf States. These measures include limits on tar and nicotine levels, a health warning showing that smoking is the main cause of lung and heart diseases to be printed on cigarette packets. It also proposed that the importing of chewing tobacco should be banned, and the imposition of curbs on the advertisement and promotion of cigarettes. In addition, designing sweets to look like cigarettes or cigarette packets to promote smoking is banned. The Saudi Multi National Multisectoral Committee adopted a national tobacco control program. This program includes estimating the epidemiology of smoking in terms of (prevalence, consumption, morbidity and mortality) and the primary and secondary prevention. Besides legislations, there are many policies of banning smoking in health and educational facilities, and public transportation (*Bassiony, 2009*).

TOBACCO CONTROL PROGRAM IN THE KINGDOM OF SAUDI ARABIA

In the Kingdom of Saudi Arabia the diseases associated with smoking have widely increased. For example the King Faisal Specialized Hospital received about 12000 lung cancer cases which constitute the majority of the cases. The economic, social and health burden of tobacco costs the kingdom about five billion Riyals nearly per year (1.3 billion US \$). So, the Tobacco Control program was established to tackle these problems. (<http://top-sa.org/newsitel/user/about.php>).

The Tobacco Control Program came into existence in 2002 as a body supervised by the Ministry of the Health. According to Dr. Ahmed Anajeb the Director of Tobacco Control Program in the Northern Border Region the TCP activities built on three pillars which are:

- (a) Awareness, (b) treatment and (c) legislation on smoking and tobacco use.

TOBACCO CONTROL PROGRAM OBJECTIVES

Tobacco Control Program TCP aims to achieve the following objectives:

- a. To protect the society from smoking epidemic especially the youth.
- b. To help smokers to quit.
- c. To protect non-smokers from second-hand smoking especially children.
- d. To activate the role of research, rehabilitation and training in controlling smoking (Report of Tobacco Control Program , Ministry of Health in Kingdom of Saudi Arabia 2009).

MEANS OF ACHIEVING THE OBJECTIVES OF THE TOBACCO CONTROL PROGRAM

The Tobacco Control Program follows varied means that help to achieve these objectives.

Firstly: It tries to raise the awareness of the people towards the harms of smoking by organizing campaigns in schools.

Secondly: The TCP offers training and qualification courses to the service providers who implement its policies.

Thirdly: The TCP has established 35 clinics throughout the Kingdom which aimed to raise the awareness of people treat smokers and help them to quit.

Fourthly: The TCP follows up the procedures and regulations on tobacco control, like banning of smoking in ministries and organizations.

Fifthly: It follows up the implementation of the Framework Convention on Tobacco Control (FCTC) in different issues such as advertising and promotion of tobacco products, selling tobacco products to children etc...(Report of Tobacco Control Program, Ministry of Health in Kingdom of Saudi Arabia 2009))

Although the TCP is supervised by the Saudi Ministry of Health, the general directorates of health affairs in the different regions administer the different clinic branches.

BACKGROUND TO THE ANTI-TOBACCO CLINIC IN ARAR

The Anti-Tobacco Clinic in Arar city was established in 2007 in the Northern Border Region. The General Directorate of Health Affairs supervises the Tobacco Control Program in the region. The TCP in the region coordinates its efforts with other public institutions to raise people awareness about the risks of smoking especially among pupils and students, besides preparing meetings with leaders of prayers (*Imams*) to urge them to advice prayers in their speeches to quit smoking simply because smoking is prohibited in Islam. In the year 2011, The TCP targeted about 8437 students in the intermediate and secondary schools by delivering public lectures, organizing exhibitions and preparing activities that aim to combat smoking among the youth. It also targeted the Northern Border University students in Arar city and other colleges likewise. As a result the total number of the clients attended the clinic during the years (2007-2012) was 3921. While the total number of the quitters during the same years was 526, (The Annual Reports of TCP in the Northern Border Region, 2007 - 2012). Offering services to smokers to quit through the Anti-Tobacco Clinic in *Arar* is just one of the important roles of the TCP in the region.

FACTORS OF SMOKING

1. **Adult imitation:** When an adolescent feels that he has become a man, he starts to imitate adults' behavior.
2. Feeling of frustration.
3. **Family environment:** It is proven that children and young people are influenced by their families' members. In a family where there is a person who smokes, it is more likely for an adolescent to become `smoker.
4. **Self-assertion:** Many people smoke because they think that smoking offers them of freedom and compensating their failure or drawing girl's attention (Awadallah, 2008).

PRICE OF CIGARETTES AND YOUTH SMOKING

Many studies have examined the effects of prices and tobacco control policies on overall cigarette demand. Increases in cigarette prices, which could be achieved by increasing cigarette taxes, will lead to significant reductions in cigarette smoking rates. Economists use the term "price elasticity of demand" to describe the impact of a change in price on consumption, defining it as the percentage change in consumption that results from a percent increase in price. However, Economic theory suggests that the price sensitivity of cigarette demand will be inversely related to age for several reasons.

First, the share of young smokers' disposable incomes spent on cigarettes is likely to be larger than that of adult smokers

Second, peer influence is more important to youths than to adults. This has a positive multiplying effect for cigarette price increases.

Thirdly, youths are generally assumed to behave more myopically than adults towards tobacco and tobacco price (Smoking and Tobacco Control Mongraph No. 14, 2001).

LITERATURE REVIEW

In Saudi Arabia, prevalence of smoking has become a real problem which addressed by researchers for long time. For instance the study of (Abdalla et al., 2007) which was conducted in Tabuk a city in the north of the Kingdom of Saudi Arabia (sample of 1505 secondary school students' in Tabuk) estimated smoking prevalence (34%) for males, and (11.1%) for females. Moreover, another study carried out in KSA reported an overall 25.3% prevalence of smoking in a sample of 1534 adults aged 15 years and above residing in Riyadh, Saudi Arabia (Saeed et al., 1996). The study of (Al-Yousaf, 2001) which carried out in Alkharj estimated the prevalence of smoking among high schools students, Saudi Arabia as 20%.

The study of (Al Agili, 2012) found that the prevalence of smoking among adolescents in Saudi Arabia was 12.43%.

The study of (Jarallah et al, 1999) has used data from a household, community-based survey of 8310 individuals from both sexes aged 15 and over in three regions of the Saudi Arabia between 1990 and 1993. The study concluded that the overall prevalence of current smoking was 21.1% for males and 0.9% for females, giving an overall rate of approximately 12%. As Jarallah et al also noted, the actual number of smokers may be higher. In 2009 the Report of the Tobacco Control Program of the Ministry of Health, showed that the percentage of adult male smokers was estimated between 35% and 45% (Tobacco Control Program Report, 2009).

REASONS OF SMOKING

Study of (Al-Kaabba,2011) has explained that the reasons of cigarettes smoking among medical students at King Fahd Medical in Riyadh, Saudi Arabia include; imitation of friends, curiosity, feeling of pleasure, reducing stress, enhancing social status of an individual, and the impact of publicity and advertising on young people. The study found that the health and religious considerations are among the most powerful motives to refrain from smoking (Al-Kaabba, 2011) . The study of (Alamri, 2009) on the Phenomenon of smoking among Saudi society has shown that the most important factors encouraging people to smoke are influences of peers with (29.73) percent, personal experience (21.62) percent, imitating of a family member (16.22) percent, desire to increase self-confidence (12.61) percent, and a desire to discover the secrets of smoking (11.17) percent. The study also found that 37.84 of the sample have experienced personal, family, and social problems.

STUDIES ON SMOKING CESSATION PROGRAMS

The Study of (Alturki, 2011) is considered as only study attempted to assess the effectiveness of the Tobacco Control Program (TCP) in Saudi Arabia. Although findings have not been published, the study has given good indicators to assess the TPC clinics in the other regions of the kingdom.

STUDIES ON SMOKING INITIATION

According to many studies, 20-50% of smokers started smoking at or before the age of 15 years, while the remaining smokers started smoking after that age. The average starting age for current smokers was 13.8 years (Al-Yousaf, 2001). While 20 per cent of smokers worldwide began smoking before the age of 10 according to UN estimation (Youth World Report 2013)

The findings of the study of (Abdullah et al, 2009) which was conducted in Tabuk government schools in Saudi Arabia, showed that about half of the students in Tabuk had ever-smoked, predominantly males, and the majority initiated the habit at or before 13 years of age These findings are in accordance with the findings of studies conducted in other parts of Saudi Arabia. Adolescents who begin smoking at a younger age are more likely to become regular smokers and less likely to quit smoking (Breslau, 1996).

METHODS AND MATERIALS

Study design

In the present study a hybrid study design was used employing both qualitative and quantitative methods. In the quantitative method a cross-sectional study was conducted. The qualitative method constituted of an in-depth interviews and focus group discussions.

Sampling

Three different outlets are used to reach the targeted category (15 to 24) years old; they are, namely, secondary schools, Northern Border University and Cafés. Four different samples from them were collected. They are as follows:

- A sample of size (656) from male secondary schools
- A sample of size (139) from the Northern Border University students – males section.
- A sample of size 153 from Northern Border University students – females section.
- A sample of size (74) from café visitors.

The sample size for each group was calculated based on sample size formula for proportion and at significance level of 0.05, marginal error of 0.05 and estimated proportion of 0.5.

DATA COLLECTION, MANAGEMENT AND ANALYSIS

The quantitative data was collected through the means of self administered questionnaire. The questionnaire was designed, reviewed by experts and it was piloted. The collected questionnaires were subjected to editing process where incomplete and inconsistent questionnaires were removed. The data was captured and processed in IBM SPSS 19.0. The qualitative data was collected through three focus group discussions (each group size is 12) with females from Northern Border University in addition to three in-depth interview with the Tobacco Control Program Coordinator in Arar. The quantitative data was summarized in terms of counts and percentages. The results are presented in tables. Chi-square test is used where appropriate. With regard to qualitative general theses were extracted and summarized.

RESULTS

The results are presented in five subsections. First, participants' profile, smoking status and factors influence smokers to smoke. Second, the participants' awareness of Anti-Tobacco Program Third, Anti-Tobacco Clinic utilization and efficiency and participants opinions on Anti-Tobacco Program efficiency Fourth, this subsection handles the issue of sensitivity of smoking to price. Finally, the qualitative data and a brief discussion are highlighted in this study.

PARTICIPANTS PROFILE, SMOKING STATUS AND INFLUENTIAL FACTORS.

The study sample comprises of a total of 1022 participants of which 656 are male secondary schools students, 139 male university students, 153 female university students and 74 café visitors (Table 1).

Table 1: Participants Profile.

Secondary schools students	University students – Males	University students – Females	Cafe' visitors	Total
656	139	153	74	1022

Table 2: Participants Smoking Status per Group.

			Smoking status		Total
			Smoker	Non smoker	
Group	Secondary school student	Count	162	494	656
		%	24.7%	75.3%	100.0%
	University student – Males	Count	53	86	139
		%	38.1%	61.9%	100.0%
	University student – Females	Count	15	138	153
		%	9.8%	90.2%	100.0%
	Cafe' Visitors	Count	52	22	74
		%	70.3%	29.7%	100.0%

Table 2 shows the smoking status for the study sample per group. The group of youth in the café has the highest percentage of smokers (70.3%) followed by male university students (38.1%), male secondary school students (24.7%), and female university students (9.8%).

Table 3a: Factors Influencing Smokers to Smoke (secondary school students)

Factor*	Response	%
Family	Yes	11.9%
	No	88.1%
Friends	Yes	54.7%
	No	45.3%
Feeling comfort	Yes	39.4%
	No	60.6%
Tension	Yes	35.1%
	No	64.9%
Anxiety	Yes	34.4%
	No	65.6%
Feeling lonely	Yes	43.5%
	No	56.5%
Frequent contact with smokers	Yes	65.5%
	No	34.5%
Social problems	Yes	20.5%
	No	79.5%
Low price of cigarette	Yes	16.3%
	No	83.7%

*Note that a participant might select more than one factor

Table 3a shows that the most influencing factor stimulating secondary school students to smoke are being in frequent contact with smokers (65.5%) followed by friends (54.7%) and feeling lonely (43.5%) while the least influential factors are family (11.9%) and low price of cigarette (16.3%).

Table 3b: Factors Influencing Smokers to Smoker (university students - males)

Factor*	Response	%
Family	Yes	15.6%
	No	84.4%
Friends	Yes	64.1%
	No	35.9%
Feeling comfort	Yes	62.1%
	No	37.9%
Tension	Yes	46.4%
	No	53.6%
Anxiety	Yes	44.4%
	No	55.6%
Feeling lonely	Yes	53.3%
	No	46.7%
Frequent contact with smokers	Yes	74.3%
	No	25.7%
Social problems	Yes	50.0%
	No	50.0%
Low price of cigarette	Yes	33.3%
	No	66.7%

*Note that a participant might select more than one factor.

For university students, the leading factor that influenced them to smoke is being in contact with smokers (74.3%) followed by friends (64.1%) and feeling good when smoking (62.1%) and the least influential factors are family (15.6%) and low price of cigarette (33.3%).

Table 3c: Factors Influencing Smokers to Smoke (university students - females)

Factor*	Response	%
Family	Yes	.0%
	No	100.0%
Friends	Yes	38.5%
	No	61.5%
Feeling comfort	Yes	41.7%
	No	58.3%
Tension	Yes	16.7%
	No	83.3%
Anxiety	Yes	25.0%
	No	75.0%
Feeling lonely	Yes	16.7%
	No	83.3%
Frequent contact with smokers	Yes	25.0%
	No	75.0%
Social problems	Yes	8.3%
	No	91.7%
Low price of cigarette	Yes	16.7%
	No	83.3%

*Note that a participant might select more than one factor.

Table 3c shows factors influencing female university students to smoke. The leading factor is feeling comfort when smoking (41.7%) followed by friends (38.5%) while the family factor has no role (0%).

Table 3d: Factors Influencing Smokers to Smoke (café visitors).

Factor*	Response	%
Family	Yes	40.9%
	No	59.1%
Friends	Yes	70.5%
	No	29.5%
Feeling comfort	Yes	76.2%
	No	23.8%
Tension	Yes	71.7%
	No	28.3%
Anxiety	Yes	63.6%
	No	36.4%
Feeling lonely	Yes	73.3%
	No	26.7%
Frequent contact with smokers	Yes	82.0%
	No	18.0%
Social problems	Yes	70.5%
	No	29.5%
Low price of cigarette	Yes	68.2%
	No	31.8%

*Note that a participant might select more than one factor.

Table 3d shows that being in frequent contact with smokers was the leading factor of café visitors to smoke (82%) followed, by feeling comfort when smoking (76.2%), feeling alone (73.3%), tension (71.7%), friends (70.5%), social problems (70.5%) and low prices of cigarette (68.2%) while family was the least important (40.9%).

ANTI-TOBACCO PROGRAM AWARENESS

Participants were asked whether they have heard of Anti-Tobacco Program. The purpose is to know to what extent the program is popular and known to the youth. Table 3 and 4 summarize the results.

Table 4 investigates the distribution of participants’ responses per group while table 5 investigates participants’ responses per group and smoking status.

Table 4: Tobacco Control Program Awareness

		Have you heard of Anti-Tobacco Program?	
		Yes	No
Group	Secondary school student	67.9%	32.1%
	University student – Males	73.9%	26.1%
	University student – Females	82.4%	17.6%
	Cafe' Visitors	73.0%	27.0%
	All	71.3%	28.7%

Table 4 shows the distribution of participants according to whether they heard about Tobacco Control Program or not and the group they belong to. It is found that the female university students are the most knowledgeable group. The proportion of 82.4% of them heard about the program. This is followed by male university students, café visitors and secondary school students (73.9%, 73% and 67.9%) respectively.

Table 5 presents percentages of participants who heard about the Program by group and smoking status. A total of 67.5% of smokers heard about the Program versus 72.7% of non-smokers. The overall statistics showed that considerable number of the youth have not heard about the program. Therefore, awareness should be intensified to make the program known to the youth. As per group analysis shows, with exception to male university students, that those who do not smoke have higher percentage of hearing about the Program. It is worthy noticing that the difference in percentage of hearing about the program is big between female smokers (66.7%) and non-smokers (84.1%). This suggests that although the percentage of female smokers is low compared to other group - more attention should be paid to female side.

Table 5: The Distribution of Participants by Smoking Status, Group and Hearing of Anti-Tobacco Program

			Have you heard of Anti-Tobacco Program?		P-value*
			Yes	No	
Group	Secondary school student	Smokers	63.0%	37.0%	0.152
		Non smokers	69.3%	30.7%	
	University student – Males	Smokers	76.9%	23.1%	0.531
		Non smokers	72.1%	27.9%	
	University student - Females	Smokers	66.7%	33.3%	0.093
		Non smokers	84.1%	15.9%	
	Cafe' Visitors	Smokers	71.2%	28.8%	0.406
		Non smokers	77.3%	22.7%	
	All	Smokers	67.5%	32.5%	0.115
		Non smokers	72.7%	27.3%	

*P-value based on Chi-square test.

The Chi-square showed no statistically significant association between smoking status and hearing about the Program.

ANTI-TOBACCO CLINIC UTILIZATION AND EFFECTIVENESS

Table 6: Distribution of Participant by Smoking Status, Group and their Opinions on the Effectiveness of the Anti-Tobacco Program

Smoking status		Do you think the Program is effective?		Total	P-value	
		Yes	No			
Smokers	Secondary school students	Count	43	46	89	0.008
		%	48.3%	51.7%	100.0%	
	University student – Males	Count	12	27	39	
		%	30.8%	69.2%	100.0%	
	University student – Females	Count	5	5	10	
		%	50.0%	50.0%	100.0%	
	Cafe' Visitors	Count	26	11	37	
		%	70.3%	29.7%	100.0%	
Total	Count	86	89	175		
	%	49.1%	50.9%	100.0%		
Non smokers	Secondary school students	Count	189	141	330	0.856
		%	57.3%	42.7%	100.0%	
	University student – Males	Count	34	28	62	
		%	54.8%	45.2%	100.0%	
	University student – Females	Count	66	50	116	
		%	56.9%	43.1%	100.0%	
	Cafe' Visitors	Count	8	9	17	
		%	47.1%	52.9%	100.0%	
Total	Count	297	228	525		
	%	56.6%	43.4%	100.0%		
Both	Secondary school students	Count	232	187	419	0.163
		%	55.4%	44.6%	100.0%	
	University student – Males	Count	46	55	101	
		%	45.5%	54.5%	100.0%	
	University student – Females	Count	71	55	126	
		%	56.3%	43.7%	100.0%	
	Cafe' Visitors	Count	34	20	54	
		%	63.0%	37.0%	100.0%	
Total	Count	383	317	700		
	%	54.7%	45.3%	100.0%		

Table 6 shows that, in overall, 54.7% think that the program is effective while 45.3% think it is not effective. However, amongst the smokers 49.1% think that it is effective compared with 56.6% of the non -smokers.

Table 7: Opinions of the Smokers Who Have Heard and Gone to the Anti-Tobacco Clinic and Assessed the Tobacco Control Program Effectiveness.

		Do you think the Program is effective?		Total	
		Yes	No		
Group	Secondary school students	Count	10	5	15
		%	66.7%	33.3%	100.0%
	University student – Males	Count	5	3	8
		%	62.5%	37.5%	100.0%
	University student – Females	Count	0	1	1
		%	.0%	100.0%	100.0%
	Cafe' Visitors	Count	25	7	32
		%	78.1%	21.9%	100.0%
Total		Count	40	16	56
		%	71.4%	28.6%	100.0%

In overall 71.4% of smokers who heard and went to the Anti-Tobacco Clinic think that it is effective. As per group: 78.1% of the café visitors think it is effective followed by secondary school student (66.7%) and male university students (62.5%). Note that we have only 1 female smoker who heard and gone to the Anti-Tobacco Clinic. This suggests that in such conservative society, female feel shy to declare that she smokes and wants to quit via Anti-Tobacco Clinic.

Table 8: The Distribution of Smoking Participants Who Have Heard About the Program by Their Group, Regardless of Whether They Have Gone to The Anti-Tobacco Clinic in Arar*

		If you heard about the Program, have you gone to the Anti-Smoking Clinic?		Total	
		Yes	No		
Group	Secondary school students	Count	16	73	89
		%	18.0%	82.0%	100.0%
	University student – Males	Count	8	31	39
		%	20.5%	79.5%	100.0%
	University student – Females	Count	1	9	10
		%	10.0%	90.0%	100.0%
	Cafe' Visitors	Count	32	5	37
		%	86.5%	13.5%	100.0%
Total		Count	57	118	175
		%	32.6%	67.4%	100.0%

*Chi-square test of association between group and going the Anti-Tobacco Clinic resulted in a p-value less than 0.005

Table 8 shows that only 32.6% of smokers who have heard about the Program and gone to the Anti-Tobacco Clinic in Arar. Per group analysis showed that café visitors occupying leading status in going to Anti-Tobacco Clinic in Arar (86.5%) followed by male university students (20.5%), secondary school students 18% and finally female university students (10%). Chi-square tests the association and suggests that there is statistically significant association between the group the participant belongs to and whether he/she goes to the Anti-Tobacco Clinic. The café visitors have been the most responsive to the Program while the female university students have been the least responsive to the Program.

Table 9: Program Effectiveness as Measured by Number of Visitors and Percentage of Quitters in Arar Anti-Tobacco Clinic (2008– 2012).*

Year	1429/2008	1430/2009	1431/2010	1432/2011	1433/2012
No of visitors	845	1400	1000	390	286
No of New visitors	352	338	308	182	111
Number of quitters	165	140	115	68	38
% of quitters	45%	41%	37%	37%	34%

***Data source:** Arar Anti-Tobacco Clinic

Table 9 shows the distribution of visitors of Anti-Tobacco Clinic and number of quitters. The maximum number of visitors served was 1400 in the year 1430/2009; after that the number of visitors continued to decline severely to reach 286 in the year 1433/2012. Also, the number of new visitors decreased from 352 in year 1429/2008 to only 111 in the year 1433/2012. The percentage of quitters declined from 45% in 1429/2008 to 34% in 1433/2012. Considering 1429/2008 as a baseline year (benchmark), there is severe decrease in utilization (number of visitors) and mild decrease in effectiveness (as measured by the percentage of quitters).

THE IMPACT OF SMOKING ON EXPENSES, SAVINGS AND SMOKER SENSITIVITY TO PRICE

Table 10a: The Impact of Smoking on Expenses, Savings and Smoker Sensitivity to Price (All participants)

	Yes		No	
	Count	%	Count	%
Does smoking influence your expenses?	157	61.3%	99	38.7%
Does smoking influence your savings?	141	56.2%	110	43.8%
Will you continue smoking if cigarette prices increase?	181	71.3%	73	28.7%
Will you continue smoking if hookah prices increase?	113	46.5%	130	53.5%

Table 10a indicates that individuals who smoke will continue smoking cigarettes and water pipe even if the price increases (71.3%, 46.5%). These are relatively large portion of smokers. It might mean that they are not sensitive to price. A proportion of (61.3%) of smokers said that smoking influence their expenses while (56.2%) indicated that it influences their savings. As per group analysis shows (table 10b to 10e), females were the least who subjected to economic consequences of smoking, followed by secondary school students and male university students. The café visitors are the most who subjected to economic consequence and less sensitive to cigarette price where 98% of them indicated that smoking influences their expenses and 74% influences their savings. However, 84% of them they said they will continue smoking cigarette even if the price of cigarettes increases.

Table 10b: Impact of Smoking on Expenses, Savings and Smoker Sensitivity to Price (Secondary school students)

	Yes		No	
	Count	%	Count	%
Does smoking influence your expenses?	74	50.3%	73	49.7%
Does smoking influence your savings?	70	49.0%	73	51.0%
Will you continue smoking if cigarette prices increase?	101	69.7%	44	30.3%
Will you continue smoking if hookah prices increase?	61	43.6%	79	56.4%

Table 10c: Impact of Smoking on Expenses, Savings and Smoker Sensitivity to Price (university students - male)

	Yes		No	
	Count	%	Count	%
Does smoking influence your expenses?	29	63.0%	17	37.0%
Does smoking influence your savings?	29	64.4%	16	35.6%
Will you continue smoking if cigarette prices increase?	32	69.6%	14	30.4%
Will you continue smoking if hookah prices increase?	22	52.4%	20	47.6%

Table 10d: Impact of Smoking on Expenses, Savings and Smoker Sensitivity to Price (university students - female).

	Yes		No	
	Count	%	Count	%
Does smoking influence your expenses?	5	38.5%	8	61.5%
Does smoking influence your savings?	5	38.5%	8	61.5%
Will you continue smoking if cigarette prices increase?	6	46.2%	7	53.8%
Will you continue smoking if hookah prices increase?	5	41.7%	7	58.3%

Table 10e: Impact of Smoking on Expenses, Savings and Smoker Sensitivity to Price (Café visitors)

	Yes		No	
	Count	%	Count	%
Does smoking influence your expenses?	49	98.0%	1	2.0%
Does smoking influence your savings?	37	74.0%	13	26.0%
Will you continue smoking if cigarette prices increase?	42	84.0%	8	16.0%
Will you continue smoking if hookah prices increase?	25	51.0%	24	49.0%

QUALITATIVE DATA ANALYSIS

In this study a qualitative data was used to derive themes from participants' responses in order to better understanding the factors for initiation of smoking among the female students of the Northern Border University.

FACTORS OF SMOKING AMONG FEMALES

According to the participants, females' smoking occurs within the web of social relations that encourage many types of youth experimentation and behaviors. Because of this social context, females' smoking arises from society, family, school, peer and media influences:

"When girls do not see or feel love from their parents, or when they feel that nobody cares for them. It is then that they take up the habit of smoking [A group of university female students, smokers and non-smokers, 19-20 years old]".

Some of the participants in this focus group discussion believed that smoking has many perceived advantages (relieves boredom, stress, anxiety, etc). Moreover, the participants stated that girls smoke because they think that smoking gives them sense of power and challenge.

On the other hand the participants emphasized the effects of social structures on individual risk behaviors' such as smoking:

“In a society where individuals have feelings of injustice or psychologically pressured may lead to a higher rate of cigarette smoking [A group of university female students, smokers and non-smokers, 19-20 years old]”.

In-depth Interview with the Director of the Tobacco Control Program in Arar

In order to conduct this interview, we sent a request to the General Directorate of Health Affairs in the Northern Border Region explaining the purpose of the study and asking for an interview with the Director of the Program Dr. Ahmed ELnagib Abdelrahim. The interview was used to explore issues in more details.

The Tobacco Control Program was established in 2007 in the Northern Border Region. The TCP was established based on three pillars mainly: legislations, awareness, and treatment. The program has many achievements but in the same time many obstacles have confronted it as stated below by Dr. Ahmed Elnagib:

- a. Shortage of the medical staff to discharge duties in the Anti-Tobacco Clinic.
- b. The limitation of fund negatively influences the amount and quality of publications and advertisement.
- c. Absence of permanent premises for the Anti-Tobacco Clinic and its transferring from place to another has created difficulties to the smokers to have an access to the clinic services. As result the number of visitors was decreased from 1400 in 2009 to 286 in 2012.

The government authorities realized these obstacles and decided to solve them by allocating additional amount of money to establish a new permanent anti-tobacco clinic for both males and females.

RECOMMENDATIONS

This study makes the following recommendations:

1. The Tobacco Control Program and other government agencies have to coordinate their efforts to encourage more smokers to visit the Clinic so as to be served.
2. Schools, families and anti-tobacco clinics should play an important role in the dissemination of knowledge and health education concerning the risks of tobacco.
3. The TCP should design special programs targeting café visitors in order to decrease the number of smokers.
4. The TCP has to improve the internal environment as well as the services provided by the Anti-Tobacco Clinic to its visitors.
5. The TCP has to choose a suitable location which is well known and reachable to its visitors.
6. The TCP has to extend its working hours to encourage smokers to visit the clinic during the day.

DISCUSSION

The prevalence of tobacco use among youth in this study was as high as that reported by other studies conducted in Saudi Arabia. In the present study the prevalence of smoking any tobacco product among 15-24 years was (70.3%) among the group of youth in cafés, followed by male university students (38.1%), male secondary school students (24.7%), and lastly female university students (9.8%). In our study prevalence of (24.7%) among secondary school students is being higher than a prevalence of 20% found among high school males in Alkharj (Al-Yousaf 2001), in addition to 12.43% among adolescents in Saudi Arabia in 2011 (Al Agili, 2011, and 22.3% among grades 7-12 male and female students in Tabouk area, the north part of the Saudi Arabia in 2009, (Abdalla,2009).

In the present study there was relatively large proportion of smokers who smoked cigarettes and hookah (71.3%, 46.5%) respectively. This may indicate that smokers insisted to smoke even if the price of the tobacco products (cigarettes and hookah) increases. So, the smokers were not sensitive towards price. This positive relationship between the increases in the price of tobacco and increases in the amount demanded. Such situation can be understood from several studies conducted on the effects of prices and tobacco control policies on overall cigarette demand. The economic theory states that Increases in cigarette prices, which could be achieved by increasing cigarette taxes, will lead to significant reductions in cigarette smoking rates, and this observation is compatible with economic theory. Economists use the term “price elasticity of demand” to describe the impact of a change in price on consumption, defining it as the percentage change in consumption that results from a percent increase in price. However, Economic theory suggests that the price sensitivity of cigarette demand will be inversely related to age for several reasons.

CONCLUSION

It is important to note that this study revealed in-depth information concerning effective cigarette smoking prevention programs. Based on the findings of this study, prevention activities of the Tobacco Control Program in Arar need to be expanded and strengthen in a comprehensive approach and to involve adolescents, youth, parents, peer groups, schools, the media, community organizations, government and law enforcement agencies, with intervention strategies generally focused on encouraging change in both the environment and individual behavior.

Although there were several factors for smoking, high among them were frequent exposure to someone who smokes. Several studies have concluded that adolescents who have friends who smoke are most likely to be smokers too, and the same was confirmed in this study too. Also, having a parent who is a smoker came out as being a significant independent factor for smoking. The effect of these factors may be due to the fact that during adolescence, children are more likely to succumb to peer social influences to satisfy their need for social interaction with their peer group. Therefore, creating a negative image of smoking and modifies the adolescents’ environment to support tobacco control program, along with incorporating policy approaches that support these initiatives may be a very successful strategy to reduce youth smoking.

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