

**Predictors of Smoking Cessation in Tabuk City; Saudi Arabia: A Pilot Study**Bandar Al qahtani <sup>1</sup>, Ibrahim AL Hariri <sup>2</sup>, Abdul Salam Ahmed <sup>3</sup>, Marwan Manajreh <sup>1</sup><sup>1</sup>Department of Academic Affairs, King Salman Armed Forces Hospital, Northwestern Region, 71411 Tabuk, Saudi Arabia<sup>2</sup>Department of Family Medicine, King Salman Armed Forces Hospital, Northwestern Region, 71411 Tabuk, Saudi Arabia<sup>3</sup>Department of Surgery, King Salman Armed Forces Hospital, Northwestern Region, 71411 Tabuk, Saudi Arabia  
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**Abstract:** This cross-sectional analytical study was conducted at King Salman and King Khalid Armed Forces Hospitals in Tabuk city in Saudi Arabia to determine the predictors of smoking cessation among military personnel treated at these two hospitals. A total of 2000 army personnel were randomly selected for this study regardless of their ranks and service status. Data were collected using a questionnaire. The overall response rate was 93.75% (1875 participants). Results revealed that the majority of participants were not used to cigarette in their life in the past [1226(65.4%)], currently [1289(68.7%)] or even on daily basis [1295(69.1%)]. Half of the participants 979(52%) picked up the smoking habit from one of their parents. Whereas, the accessibility [very easy 1039(55.4%); easy 836 (44-6%)] of getting cigarettes was the main common ground for all of the participants. On the other hand, peers influenced a total of 1286(68.6%) participants while 1012(54%) participants were driven by the affordable price. Vast majority of the participants 1556(83%) believed that awareness campaigns and programs for community and schools respectively as well as social networking 1469(78.3%) and the internet 1300(69.3%) can make a difference in cigarette smoking cessation. Parent(s), peers, easiness/affordability/tempting price of getting a cigarette were the main cigarette smoking predictors among the study population. Therefore, public awareness campaigns and programs in schools can give a supportive push to the plans of cigarette smoking cessation among the study population.

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**Keywords:** Cigarette smoking cessation; peers influence; cessation awareness campaign; Tabuk

**1. Introduction**

Smoking is recognized as a big public health issue in Saudi Arabia. According to latest studies 17.5% of the population comprises of smokers.<sup>1</sup> In Saudi Arabia almost 30,000 deaths occur annually due to smoking and 15% of the total health care costs are spent for its treatment.<sup>2</sup> Existing literature on military service and smoking portrayed the military as risk environment.<sup>3</sup> The military is described as “tobacco friendly”<sup>4</sup>, “pro-tobacco”<sup>5</sup>, and “highly hospitable to smoking”.<sup>6</sup>

Military personnel usually undergo tough training, most of the time work in a harsh area and shoulder the main duty of keeping security of a large country like Kingdom of Saudi Arabia. For them to carry out their duty efficiently they need to be alert all the time. In order to combat anxiety, stress during training, monotony, lack of sleep, and peer influence in military settings smoking is considered as a reliever for these element and it has alluded as part of military culture.<sup>3, 7</sup> It has been reported that army personals during overseas deployment do more smoking. This

change in smoking behavior might be result of stress, boredom and cigarettes low cost.<sup>8</sup>

Among army personals smoking continues to be higher as that of civilian population. During 20<sup>th</sup> century prevalence of smoking exceed 50% among military personals because of certain reasons.<sup>9</sup> Prevalence of smoking among military personals in different countries ranges in between as low as 22% and as high as 74%.<sup>10-18</sup> Smoking not only have a negative impact on fitness, readiness and performance of army personals it also increases the costs of health care.<sup>19</sup>

During deployment, junior enlisted personnel report smoking to manage stress, boredom, anxiety, sleep deprivation, and proximity to danger, even though they recognize the health risks associated with smoking.<sup>20</sup>

Various factors responsible for smoking among active duty army personals includes smoking breaks from seniors, charm of smoking areas, low cost & tax free availability of cigarettes.<sup>3, 21-23</sup>

Research identifies various factors that contribute to tobacco use among active-duty

personnel, including smoking breaks offered to them by superiors, the attractiveness of smoking areas, the social dimension of smoking, and the relatively low cost of tobacco products, which are sold tax free through military commissaries and exchanges.

Nicotine addiction is hard to overcome, and therefore, patterns of smoking (re-)established, maintained, or amplified during the period of active-duty military service may carry over into the veteran period of the life course, which characterizes the vast majority of the adult lives of most people who serve in the military. There is considerable evidence documenting a strong association between veteran status and smoking.<sup>24,25</sup>

The prevalence of cigarette smoking among the military personnel in KSA is not known. The financial burden and the complications of cigarette smoking is also not yet published. Tobacco smoking remains by far the largest preventable cause of many human ailments<sup>26</sup>. Reducing uptake and promoting cessation are both important. Considerable scientific advances have been made in methods of encouraging smokers to stop. However, not all interventions work equally well in all countries. A particular country needs to be able to adapt best proven intervention strategies to be implemented in its own population<sup>27,28,29</sup>. New findings and recent development in behavior change theory offer the opportunity to advance the science and practice of smoking cessations as soon as possible. In this context, this paper aimed to determine the prevalence and predictors cessation of cigarette smoking among military personnel of King Salman and King Khalid Armed Forces Hospitals in Tabuk city; Northwestern Region; Saudi Arabia.

## 2. Material and Methods

### *Study Design and Population:*

This cross-sectional study was carried out among Military personnel of King Salman and King Khalid Armed Forces Hospitals in Tabuk city Northwestern Region; Saudi Arabia.

### *Sample Size Calculation:*

The sample size was calculated using STATA version 13 package assuming stratified sampling for finite population. The following assumptions are included in the calculation:

Error probability ( $\alpha$ ) = 0.05

Test Power ( $1-\beta$ ) = 0.9

The difference between the null and hypothesized values ( $\Delta$ ) = 0.05. The recommended sample size = 2256. By adding the study design factor which is 20% of the calculated sample size (451.2). Also 15% for the suggested non-response rate (338.4) was added to obtain the minimum sample size which was 3045 participants. The stratified sampling method was used to distribute the sample size among strata by

percentages equal to these strata participation in the population. Therefore the sample distribution was as follows:

A. King Salman Armed Forces Hospital: number of patients attending this hospital.

B. King Khalid Hospitals: Number of patients attending this hospital.

### *Inclusion Criteria:*

The eligible participant was an adult ( $\geq 18$  years) Saudi military personnel (currently serving or retired) male cigarette-smoker who attended the listed hospitals for treatment or follow up and willing voluntarily to participate in the study.

### *Exclusion Criteria:*

Individuals, who were non-Saudi, were not military personal, non-smoker, sick, unable to complete the study questionnaire and/or aged  $< 18$  years old.

### *Data Collection, Instrument, Management and Analysis:*

Data were collected by trained research assistants using the self-reported questionnaire. Data were cleaned, entered analysed using SPSS version 21 for windows.

### *Ethical Consideration:*

Ethical approval was obtained from the Ethical committee of Medical Services Department Ministry of Defence and also from the Military Hospital in which the study was carried out.

## 3. Results and Discussion

The calculated response rate was 93.75% (1875 out of 2000). Table 1 shows that most of the participants were in their middle age 912(48.6%), married 1665(88%), earning lesser 1002(53.4%) and currently in service 1573(83.9%).

The majority of participants were not used to cigarette in their life in the past [1226(65.4%)], currently [1289(68.7%)] or even on daily basis [1295(69.1%)] as presented in Table 2. Half of the participants 979(52%) were influenced by at least one of their parents as regarding smoking habit. On the other hand, it seems that accessibility [very easy 1039(55.4%); easy 836 (44-6%)] of getting cigarette was the main common ground for all of the participants (Table 2).

The vast majority of the participants 1593(85%) were able to buy their own cigarette supply (Table 3). Results also revealed that the majority of participants' peers 1286(68.6%) smoke too and it seems it was so difficult to most of the participants 1170(62.4%) to refuse a cigarette offered by a friend (Table 3). Generally speaking, there was no a particular type of cigarette that was preferred by the participants 1437(76.6%) however, more than half of the participants 1012(54%) were driven by the price as

well as peer's choice (Table 3). Nevertheless, more than half 1019(54.3%) of those participants had tried quitting this habit at least once 304(16.2%) to over twenty times 302(6.1%) whereas, nearly half of the participants 819(43.7%) thought they can't quit smoking in the future (Table3).

Table 1: Sociodemographic Characteristics of the Study Population

Characteristic	Frequency	Percentage
<i>Age</i>		
16-30	567	30.2
31-43	912	48.6
>44	396	21.1
Total	1875	100
<i>Marital Status</i>		
Single	172	9.2
Married	1665	88.8
Divorced	38	2.0
Total	1875	100
<i>Monthly Income</i>		
5001-10000	1002	53.4
10001-15000	623	33.2
>15000	250	13.3
Total	1875	100
<i>Working Status</i>		
In-service	1573	83.9
Retired	302	16.1
Total	1875	100

Obviously, the vast majority of the participants 1556(83%) believe that awareness campaigns and programs for community and schools respectively as well as social networking 1469(78.3%) can be effective measures for preventing spread of cigarette smoking habit. Furthermore, more than two third of the participants 1300(69.3%) thought that the internet can play the same effective role in cigarette smoking control plan (Table 4).

Nearly half of the participants 812(43.3%) started their day (6-30 minutes immediately after waking-up) with smoking which represented the most difficult habit for the majority of them 1296(69.1%) to refrain. However, the heavy rate of smoking during the day for 1269(69.1%) of the participants begins a few hours after waking up but it wasn't the case when they were sick (69.1%) (Table 4). Despite the fact that half of the participants 954(50.1%) used to smoke a total of 11 to 20 cigarettes a day, more than two third of them (1296(69.1%)) contributed positively in preventing environmental tobacco smoking (ETS) through following the smoking ban regulations (Table 4).

Table 2. Smoking Experience of the Study Population

Category	Frequency	Percentage
<i>Have you ever get used to cigarettes in your life?</i>		
Yes	649	34.6
No	1226	65.4
Total	1875	100
<i>Did you get used to cigarettes in your life now?</i>		
Yes	586	31.3
No	1289	68.7
Total	1875	100
<i>Did you get used to cigarettes in your life everyday?</i>		
Yes	580	30.9
No	1295	69.1
Total	1875	100
<i>Did you get used to cigarettes in your life between day/week?</i>		
No	1289	68.7
1 Time	2	0.1
2-3 Times	4	0.2
Continuous	573	30.6
Some Times	7	0.4
Total	1875	100
<i>Why do you smoke?</i>		
I do as one parent does or both do	979/1875	52.2
I follow my friends	896/1875	47.8
To relieve stress	732/1875	39.0
Other reasons for smoking	897/1875	47.8
<i>Is it easy to get cigarettes?</i>		
Very Easily	1039	55.4
Easily	836	44.6
Total	1875	100

#### 4. Conclusion

A representative segment of Tabuk city population was surveyed to determine the smoking habit predictors and assess potential cigarette smoking cessation among them. Parent(s), peers, easiness/affordability/tempting price of getting a cigarette were the main predictors for the habit of cigarette smoking among the study population. The good news was that more than half of the participants had tried (at least once) quitting the smoking habit however, the worrisome issue was that most of them believed that it will be difficult to them to quit this habit in the future. Nevertheless, the vast majority believed in the effective role of awareness through programs, social networking and the internet in promoting the culture of cigarette smoking cessation. Therefore, awareness campaigns and programs can give a supportive push to the plans of cigarette smoking cessation among the study population.

Table 3. Quitting Determinants of Cigarette Smoking among the Study Population

Determinant	Frequency	Percentage
<i>How to get Cigarettes?</i>		
I buy it	1593	85
I share with my friend	244	13
Others	38	2
Total	1875	100
<i>How many of your friends are smoking cigarettes?</i>		
Nobody	122	6.5
Little of them	467	24.9
Mostly	1286	68.6
Total	1875	100
<i>To what extent can you afford to say "no" to a friend giving you a cigarette?</i>		
It is very difficult to refuse	235	12.5
Difficult to refuse	1170	62.4
Easy to refuse	235	12.5
Very easy to refuse	235	12.5
Total	1875	100
<i>What is the type of cigarettes that you are smoking?</i>		
Marlboro	398	21.2
Devadov	396	21.1
Dunhill	313	16.7
Parliament	252	13.4
Winston	301	16.1
Others	215	11.5
Total	1875	100
<i>Why do you smoke this particular type?</i>		
It does not have a specific type	1437/1875	76.6
My friends use this type	1012/1875	54
Parents use this type	438/1875	23.4
Price is not expensive	1012/1875	54
I like the logo of this type	438/1875	23.4
I like ads offered for this type	438/1875	23.4
<i>Have you tried to quit smoking cigarettes?</i>		
Yes	1019	54.3
No	856	45.7
Total	1875	100
<i>How many times have you tried to quit smoking cigarettes (at least for one day) over the past 12 months?</i>		
> 20 Attempts	302	16.1
11-20 Attempts	302	16.1
2-10 Attempts	161	8.6
Just try one	304	16.2
Do not try	806	43.0
Total	1875	100
<i>Do you think you can quit smoking cigarettes in the future?</i>		
Yes	372	19.8
No	819	43.7
Probably	366	19.5
I do not think so	318	17.0
Total	1875	100

Table 4. Preventive Predictors of Quitting of Cigarette Smoking among the Study Population

Predictor	Frequency	Percentage
<i>Which one of the ways can be successful in preventing cigarette abuse?</i>		
Awareness programs across schools and communities	1556/1875	83.0
Use of frankincense mixed with nicotine	893/1875	47.6
Using television awareness	1556/1875	83.0
Using radio awareness	1012/1875	54.0
Social Networking Programs	1469/1875	78.3
Internet	1300/1875	69.3
<i>How soon after you wake up do you smoke your first cigarette?</i>		
Within 5 minutes	389	20.7
6-30 Minutes	812	43.3
31-60 Minutes	361	19.3
>60	313	16.7
Total	1875	100
<i>Do you find it difficult to refrain from smoking in places where it is forbidden?</i>		
Yes	579	30.9
No	1296	69.1
Total	1875	100
<i>Which cigarette would you like most to give up?</i>		
The First in the morning	580	30.9
Any Other	1295	69.1
Total	1875	100
<i>How many cigarettes per day do you smoke?</i>		
<=10	546	29.1
11-20	954	50.9
21-30	363	19.4
>=31	12	0.6
Total	1875	100
<i>Do you smoke more frequently during the first hours after awakening than during the rest of the day?</i>		
Yes	580	30.9
No	1295	69.1
Total	1875	100
<i>Do you smoke even if you are so ill that you are in bed most of the day?</i>		
Yes	580	30.9
No	1295	69.1
Total	1875	100

**Limitations**

The study was confined only to the military personnel attending for treatment at King Salman and King Khalid Armed Forces Hospitals in Tabuk city.

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