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ORIGINAL ARTICLE

STUDY OF SMOKING HABITS AMONG BEDOUINS IN THE WESTERN DESERT OF EGYPT

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Background: *Tobacco smoking is the practice where tobacco is burned and the vapors either tasted or inhaled .the practice began as early as 5000-3000 B.C in South America. The active substances trigger chemical reactions in nerve endings which heighten the heart rate, memory and alertness. The United States centers for diseases control and prevention describe tobacco smoking as the single most important preventable risk to human health in developed countries and important cause of premature death worldwide. The aim of this work is to study Causes, Methods and factors affecting smoking habits among smoker Bedouins of Western Desert of Egypt in Matrouh Governorate.*

Method: *This study is a Cross Sectional study conducted on 500 of current smoker Bedouins of the Western Desert of Egypt in 7 towns of Matrouh Governorate (Marsa Matrouh, Elsalloum, Sidi Barrani, Siwa Oasis, Ras El-hekma, El-alamein, El-hammam) selected from the community (hospitals, offices, cafes, schools, colleges, farms, houses, streets). From January 2011 – June 2011.All subjects were answered questionnaire to collect information about causes of initiation, pattern of smoking, trials to quit and social support.*

Conclusion: *Smoking is a common habit among Bedouins male in the Western Desert of Egypt. Smoking is hard to quit due to nicotine dependency. The mood of the smoker affects the rate of smoking. Smoking causes respiratory and non-respiratory complications. Level of education does not affect the smoking habit. There no effect of media on smoking habit.*

Keyword: *smoking*

INTRODUCTION

Tobacco smoking is the practice where tobacco is burned and the vapors either tasted or inhaled .The practice began as early as 5000-3000 B.C in South America.(1) Dopamine and later Endorphins are released which are associated with pleasure.(2) Most smokers begin smoking during adolescence or early adulthood.(3) Children of smoking parents are more likely to smoke than children with non-smoker parents'.

One study found that parental smoking cessation was associated with less adolescent smoking except when the other parent currently smoked. (4)

Psychologists such as Eysneck have developed a personality profile for the typical smoker. Extraversion is the trait that is most associated with smoking and smokers tend to be sociable, impulsive, risk taking and excitement seeking individuals; although personality and social factors may make people likely to smoke ,the actual habit is a function of operant conditioning.

During early stages smoking provides pleasurable sensations and thus serves as a source of positive reinforcement.[5] In the total surveyed populations aged 18 years or older, prevalence of past year illicit heavy cigarette use, drug abuse, alcohol dependence are highest among unemployed individuals.[6] The United States centers for diseases control and prevention describe tobacco smoking as the single most important preventable risk to human health in developed countries and important cause of premature death worldwide.[7] Smoking cessation referred as quitting is the action leading towards abstinence of tobacco smoking; there are a number of methods such as antidepressants, hypnosis, self help and support group.[8]

Aim of the work: The aim of this work is to study Causes, Methods and factors affecting smoking habits among smoker Bedouins of Western Desert of Egypt in Matrouh Governorate.

SUBJECTS AND METHODS

This study is a Cross Sectional study conducted on 500 of current smoker Bedouins of the Western Desert of Egypt in 7 towns of Matrouh Governorate (Marsa Matrouh, Elsalloum, Sidi Barrani, Siwa Oasis, Ras El-Hekma, El-Alamein, El-Hammam) selected from the community (hospitals, offices, cafes, schools, colleges, farms houses, streets). The study was done From January 2011 – June 2011.

Each Bedouin smoker has to reply to the following questionnaire with answer option. The language of the questionnaire is Arabic:

1. *What is your age, occupation, residence town, level of education and marital status?*
2. *Method of smoking*
3. *Causes of smoking*
4. *Other home smoking member*
5. *Does your work affect smoking habit?*
6. *Does your marriage affect smoking habit?*
7. *When do you smoke your first cigarette?*
8. *Can you stop smoking in smoking free places?*
9. *How does depression affect your smoking?*
10. *How does happiness affect your smoking?*
11. *What is your opinion about smoking?*
12. *What is your opinion about smokers?*
13. *How much does smoking consume of your income % every month?*
14. *Did you try to stop smoking before?*

    If yes:

    For how long? ……months

    Why did you return to smoke?
15. *What are the causes of stopping smoking?*
16. *What was your method of quitting smoking?*
17. *Had you any accident as a result of your smoking habit?*
18. *Do you have any chronic health problem?*
19. *Did Smoking cause any chest symptoms?*
20. *Did smoking cause any other health problems?*
21. *What is your opinion in media against smoking?*
22. *What is your attitude towards legal restrictions?*
23. *How do you feel during fasting in Ramadan?*

The collected data was revised, coded, tabulated and introduced to a PC using statistical package for Social Science (SPSS 15.0.1 for windows; SPSS Inc, Chicago, IL, 2001). Data was presented and suitable analysis was done according to the type of data obtained for each parameter.

i. Descriptive Statistics:

1. Mean, Standard deviation (±SD), Median, Minimum and Maximum values (range) for numerical data.
2. Frequency and percentage of non-numerical data.

ii. Analytical Statistics:

1. Student T Test was used to assess the statistical significance of the difference between two study group means.
2. ANOVA test was used to assess the statistical significance of the difference between more than two study group means.
3. Correlation analysis (using Pearson's method) was used to assess the strength of association between two quantitative variables. The correlation coefficient denoted symbolically "r" defines the strength and direction of the linear relationship between two variables.
4. Chi-Square test was used to examine the relationship between two qualitative variables.

P- value: levels of significance.

- P > 0.05: Non significant (NS).
- P < 0.05: Significant (S).
- P < 0.01: Highly significant (HS).

RESULTS

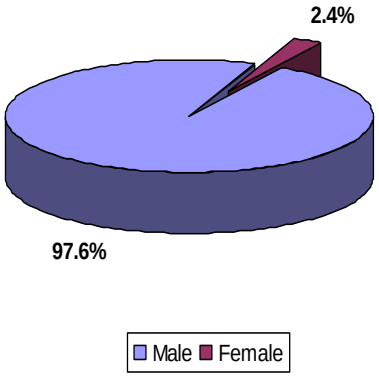

Figure 1. Gender Distribution

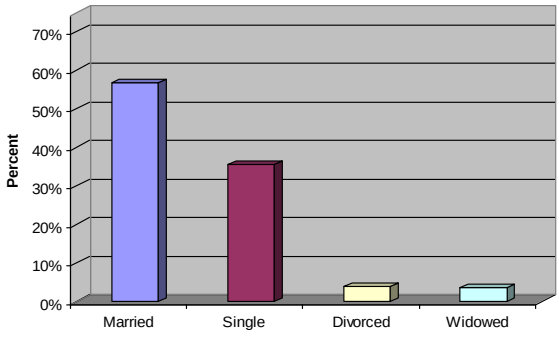

Figure 2. Marital Status Distribution

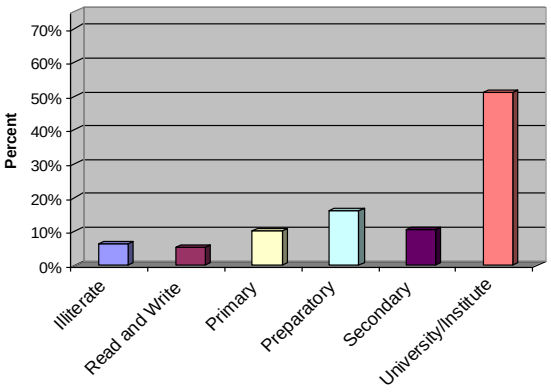

Figure 3. Levels of Education Distribution

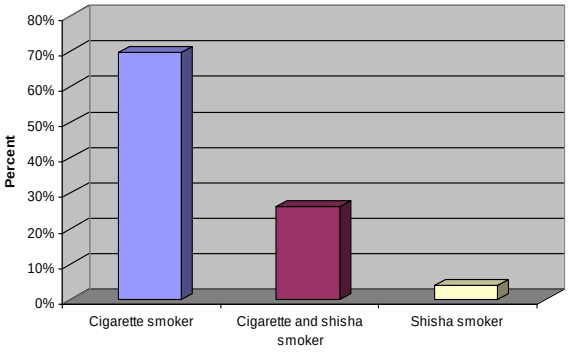

Figure 4. Methods of Smoking

Figure 5. Stoppage of Smoking in Public Places

Table 1. Age, Age of Onset, Duration of Smoking and Pack-year among Cigarette Smokers.

	Mean	±SD	Minimum	Maximum
Age	35.7	13.1	10.0	86.0
Smoking Age of Onset	15.6	4.7	8.0	50.0
Smoking duration	19.8	13.1	1.0	72.0
Pack-Year	30.2	26.4	.3	171.0

Table 2. Age, Age of Onset, Duration of Smoking and Smoking Index of Shisha Smokers.

	Mean	*±SD*	*Minimum*	*Maximum*
Age	34.4	12.6	16.0	72.0
Shisha age of onset	19.7	6.6	8.0	58.0
Shisha duration	14.7	12.3	1.0	58.0
Sessions/Day	2.0	1.4	1.0	8.0
Stones/Session	2.8	1.9	1.0	12.0

Table 3. Causes of Smoking.

			N	*%*
Causes of Smoking	A tradition		412	82.4%
	My Friends pushed me to smoke		354	70.8%
	To overcome boring sensation		299	59.8%
	Helps me overcome my problems		189	37.8%
	I think it will give me trust		179	35.8%
	Increases my concentration and memory		132	26.4%
	To simulate my parents or brothers		105	21.0%
	To be attractive to females		57	11.4%
	Get rid of headache		34	6.8%
	Other Reasons	Lonely	2	.4%
		Work	2	.4%
		Stimulant	2	.4%
		Travel	1	.2%

Table 4. Presence of Other Household Smokers and their Percentage.

		N	*%*
Other Home Member Smokers	Yes	447	89.4%
	No	53	10.6%
Percent of Home Member Smokers	Mean ±SD	45.5%±15.1	
	Range	0.4%-100%	

Table 5. Time of First Cigarette after Waking up and Percent of Income Spent on Smoking.

	Mean	*±SD*	*Minimum*	*Maximum*
Time of 1st Cigarette after waking up	26.1	54.3	1.0	600.0
Percent of Income Spent on Smoking	39.4	23.0	1.0	100.0

Table 6. Effects of Work, Marriage, Depression and Happiness on Smoking.

		N	*%*
Effect of work on smoking	Increase	278	58.9%
	Decrease	145	30.7%
	No change	49	10.4%
Effect of marriage on smoking	Increase	176	54.0%
	Decrease	67	20.6%
	No change	83	25.5%
Effect of depression on Smoking	Increase	391	78.2%
	Decrease	9	1.8%
	No change	100	20.0%
Effect of Happiness on Smoking	Increase	170	34.1%
	Decrease	78	15.6%
	No change	251	50.3%

Table 7. Opinion of Smoker Bedouins in Smoking Habit and Smokers' Personalities.

		N	*%*
Opinion in Smoking	Bad habit	456	91.2%
	Good habit	44	8.8%
Opinion in Smokers	Bad people	121	24.2%
	Good people	53	10.6%
	Indifference	326	65.2%

Table 8. Previous Trials of Quitting Smoking, Mean Duration and Causes.

		N	*%*
Stopped smoking Before	Yes	254	50.8%
	No	246	49.2%
Duration of stoppage	Mean±SD	7.6±15.8 month	
	Range	0.3-96 month	
Stopped for sake of my health and fitness	Yes	197	77.6%
	No	57	22.4%
Stopped because of my illness	Yes	25	9.8%
	No	229	90.2%
Stopped due to financial causes	Yes	55	21.7%
	No	445	78.3%
Stopped because of family	Yes	67	26.4%
	No	187	73.6%
Stopped because of friends	Yes	5	2%
	No	249	98%
Stopped due to work	Yes	17	6.7%
	No	237	93.3%
Stopped due to religious causes	Yes	71	28%
	No	183	72%
Other causes	Pregnancy	1	0.3%
	Travel	1	0.3%

Table 9. Methods of Stopping Smoking, and Reasons for Return to Smoking (failure of quitting).

		N	*%*
Method of stopping	by self help	246	96.9%
	with aid of medications	7	2.8%
	with psychotherapy	1	.4%
Return due to nervous situation	Yes	64	25.2%
	No	190	74.8%
Return due to sad situation	Yes	17	6.7%
	No	237	93.3%
Return due to nicotine craving	Yes	48	18.9%
	No	206	81.1%
Return due to friends	Yes	42	16.5%
	No	212	93.5%
Return without specific reason	Yes	51	20.1%
	No	203	79.9%
Return due to stresses	Yes	29	11.4%
	No	225	88.6%

Table 10. Accidents and Problems Resulted from Smoking Habits.

		N	*%*
Burn clothes	Yes	451	90.2%
	No	49	9.8%
Burn skin	Yes	302	60.4%
	No	198	39.6%
Car accident	Yes	54	10.8%
	No	446	89.2%
Fire accident	Yes	64	12.8%
	No	436	87.2%
Family problems	Yes	21	4.2%
	No	479	95.8%
Work problems	Yes	10	2.0%
	No	490	98.0%

Table 11. Chest Symptoms Resulted from Smoking Habit

		N	%
Chest problems	Cough	412	82.40%
	Sputum production	358	71.60%
	Wheezes	235	47.00%
	Breathlessness	133	26.60%
	Chest pain	69	13.80%

Table 12. Other Health Problems Resulted from Smoking Habit.

	N	%
Teeth problems	286	57.20%
Nasal sinuses problems	213	42.60%
Voice problems	183	36.60%
Gastro-intestinal	159	31.80%
Recurrent infections	75	15.00%
Genito-urinary problems	62	12.40%
Eye problems	54	10.80%
Cardiac problems	16	3.20%

Table 13. Opinions of Bedouins Smokers in Media Role and Legal Restrictions against Smoking.

		N	%
Media role	Useful	181	36.2%
	Useless	319	63.8%
Legal restrictions	With	235	47.0%
	Against	265	53.0%

Table 14. Most Common Feelings of Smoking Cessation During Fasting in Ramadan.

	N	%
Nervous	258	51.6%
Sleepy	224	44.8%
Calm	215	43.0%
Lack of concentration	192	38.4%

Table 15. Relationship between Pack-Year and Level of Education.

	Pack-Year		*P**	*Sig*
	Mean	*±SD*		
Illiterate	40.19	32.35	.0001	HS
Read and Write	49.10	33.11		
Primary	37.12	28.92		
Preparatory	38.36	28.99		
Secondary	26.65	30.15		
University/Institute	23.76	19.79		

**ANOVA test*

Table 16. Relationship between Pack-Year and Occupation.

	Pack-Year		*P**	*Sig.*
	Mean	*±SD*		
None	16.35	13.17	.000	HS
Retired	72.07	36.34		
Housewife	11.94	12.40		
Student	3.56	2.48		
Unskilled worker	41.31	26.90		
Skilled worker	35.35	28.00		
Specialist	23.54	19.79		

**ANOVA test*

Table 17. Correlations Between Age of Smoker and Pack–Year.

		Pack - Year
Age	R	.725
	P	.001
	Sig.	HS

- There was a highly significant direct correlation between age and pack–year.

Table 18. Relationship Between Pack - Year and the Presence of Health Problems.

		Pack-Year		P*	Sig.
		Mean	±SD		
Health Problems	Yes	43.41	35.37	.001	HS
	No	24.57	19.01		

*Student T-Test

- There was a highly significant direct relationship between presence of chronic health problems and pack-year.

Table 19. Relationship between Pack- Year and the Presence of Work Problems.

		Pack-Year		P*	Sig
		Mean	±SD		
Work problems	Yes	34.33	20.16	.632	NS
	No	30.08	26.52		

*Student T-Test

- There was no significant correlation between pack-year and presence of problems at work.

Table 20. Relationship between Pack-Year and the Presence of Other Home Member Smoker

		Pack-Year		P*	Sig.
		Mean	±SD		
Other Home member smoker	Yes	31.40	27.03	.001	HS
	No	19.43	16.75		

*Student T-Test

- There was a highly significant relationship between pack-year and presence of other home member smokers.

Table 21. Correlations between Percent of Home Member Smoker and Pack-Year.

		Pack-Year
Percent of Home Member Smoker	R	.082
	P	.089
	Sig.	NS

- There was no significant relationship between pack-year and percent of home member smokers

Table 22. Relationship between Pack-Year and Previous Trials of Smoking Cessation.

		Pack-Year		P*	Sig.
		Mean	±SD		
Stopped smoking Before	Yes	28.85	26.77	.273	NS
	No	31.50	26.02		

*Student T-Test

- There was no significant relationship between previous trials of quitting and pack-year

Table 23. Relationship between Pack-Year and Feelings during Smoking Absenteeism in Ramadan.

		Pack-Year		P	Sig.
		Mean	±SD		
Calm	Yes	25.3	26.1	.001	HS
	No	33.6	26.1		
Nervous	Yes	33.7	25.7	.002	HS
	No	26.2	26.7		
Lack of Concentration	Yes	31.0	26.4	.556	NS
	No	29.6	26.4		
Sleepy	Yes	32.7	27.7	.058	NS
	No	28.1	25.1		

*Student T-Test

- There was highly significant inverse relationship between calmness and pack-year.
- There was highly significant direct relationship between nervousness and pack-year.
- There was no significant relationship between pack-year and lack of concentration or sleepiness during fasting in Ramadan.

Table 24. Comparisons between Participants with Different Educational Level as regard their Opinion in Media against Smoking.

		Level of Education												P*	Sig.
		Illiterate		Read &Write		Primary		Preparatory		Secondary		University/Institute			
		N	%	N	%	N	%	N	%	N	%	N	%		
Media	*Useful*	9	28.1%	9	33.3%	18	35.3%	24	29.6%	17	32.1%	104	40.6%	.405	NS
	Useless	23	71.9%	18	66.7%	33	64.7%	57	70.4%	36	67.9%	152	59.4%		

*Chi-Square Test

- There was no significant relationship between level of education and opinions in media role against smoking.

Table 25. Comparisons between Participants with Different Educational Level as regard their Opinion in Legal Restriction against Smoking

		Level of Education												P*	Sig
		Illiterate		Read& Write		Primary		Preparatory		Secondary		University/Institute			
		N	%	N	%	N	%	N	%	N	%	N	%		
Legal restrictions	*With*	18	56.3%	14	51.9%	18	35.3%	31	38.3%	25	47.2%	129	50.4%	.166	NS
	Against	14	43.8%	13	48.1%	33	64.7%	50	61.7%	28	52.8%	127	49.6%		

*Chi-Square Test

- There was no significant relationship between level of education of the participants and their opinions in legal restrictions against smoking.

DISCUSSION

Cigarette smoking has been implicated as a "gateway" to other drugs abuse. The mechanism of gateway effects of smoking has been assumed to involve psychosocial processes. [9]

Matrouh governorate is the second largest governorate of the Arab Republic of Egypt with a total area of 166,563 kilometers² (16.6% of the national territory). However, Matrouh population is only less than 340000 persons (0.4%. of Egypt Population). It comprises eight municipalities: Sallum, Barrani, Negiela, Marsa Matrouh, Dabaa, El-Hammam, El-Alamein and Siwa. With a coastline extending along the Mediterranean for 450 Kms and extreme desert hinterland of up to 400 kms depth, suggests a great potential for dynamic promotion and development, which so far has been limited to a thin stretch of beach resorts. According to some estimates, the number of conventionally known Bedouins roaming in the desert to herd their sheep is less than 50000. However, the tribes to which most of the citizens of Matrouh Governorate belong (Awlad Ali tribes) being sedentary or Bedouin alike are known to extend across the borders into Libya. It is not far from the reality to claim that the peoples of the western parts of Egypt and the eastern parts of Libya have common tribal and cultural affiliations. [10]

The aim of this work is to study Causes, Methods and factors affecting smoking habits among smoker Bedouins of Western Desert of Egypt in Matrouh Governorate.

In this work, Males were 97.6% while females were only 2.4% of the smokers (female-male ratio 1- 40). This low ratio compared to Egypt female-male smoking ratio 1-21 as mentioned in **World Health Organization Tobacco Atlas, 2007** [11] may be due to the traditions of Bedouins that impede females smoking except for grandmas, at the side of difficulty in sampling smoker females.

In the current study, married Bedouins were the most common (56.8%). This result is compatible with the result of **Global Adult Tobacco Survey - Egypt Country Report 2009** [12] in which married people were 60.7% of smokers. This can be explained by stress of marriage duties well thought-out among Arab communities and the concept of smoking as a release in face of daily stresses.

The most common occupations found among smoker Bedouins were specialists (desk jobs) and skilled workers. These types of jobs needs mental concentration, no great physical effort and stressful but this result is incompatible with the result of **Sterling & Weinkam, 1976** [13] household survey conducted among American adults and stated that prevalence of smoking is highest among blue collar occupations and lowest among professionals, managers, and proprietors.

Consequently, the most common level of education found in this study was the higher educational levels for the same previous reasons. This is incompatible with the result of **Jarallah et al, 1999** [14] study in Saudi Arabia where smoking prevalence was higher among those who had lower and technical education.

Chronic patients or people have chronic health problems and still smokers were 30.2% of smoker Bedouins suggestive of a high degree of smoking dependence among them. This result is near to the result of **Mikhael, 2011** [15] who found that doctors in Souhag Hospital who smoked when ill were 35%.

In the current study, as regard methods of smoking; cigarette smokers were 69.8%, both cigarette and Shisha smokers were 26.2% (Shisha smoking was scattered and not a daily habit). So, cigarette smokers were forming about 96% of smoker Bedouins while regular Shisha smokers were only 4%. These figures are totally different from the results of **Global Adult Tobacco Survey Egypt Country Report, 2009** [12] that documented cigarette smokers were 83.2% while Shisha smokers were 16.8% of the overall tobacco users. The low popularity of shisha smoking among Bedouin smokers may be due to the common use of another bubbling instrument (Gansha), a traditional method for smoking hashish in groups or small communities as alternate of Shisha.

In the current study, the mean age of subjects was 35.7 years. This result is in accordance with the result of **Youssef et al, 2000** [16] survey on tobacco use in the city of Alexandria, Egypt who found that 58.8% of the current smokers were in age group 35-44 years.

In the current work, the age of onset of cigarette smoking was 15.6 years. This emphasis that smoking habit often starts during adolescence. So, anti-smoking programs should be targeted to teens. This result is well-matched with the result of **Saeed et al, 1996** [17] study of smoking behavior and attitudes among adult Saudi nations in Riyadh and stated that smoking age of onset was before age of 15 years .

Mean Pack-year of cigarette smokers among smoker Bedouins was 30.2 and this means Bedouins smokers were moderate cigarette smokers. This result is different with study of **Michael, 2011** [15] who found that most of smoker doctors in Souhag hospitals (69%) were mild smokers with pack-year less than 20. This difference could be explained by the delayed onset of smoking among smoker doctors in the aforementioned study (between 20-30 years) and so, duration of smoking is shorter for the same age group. In addition to the high prevalence of hashish abuse among Bedouins which increases smoking rate.

The age of Shisha smokers among Bedouins was nearly as that of the cigarette smokers. On the other hand, Shisha age of onset was 19.7 years i.e. later than that of cigarette smokers by about 4 years. This result is incompatible with the result of **Gadalla et al, 2003** [18] who studied the prevalence of smoking among rural secondary school students in Qualyobia governorate and found that Shisha smoking was reported by 19% (26% among males and 5% among females) with age of initiation at 12 years old that reflect a cultural difference between farmers community and Bedouins community regarding smoking habits.

In this study, Shisha smoking index was about 5.6 stones/ day. This means that Bedouins are mild Shisha smokers according to **Ferris Index, 1978** [19] that consider less than 10 stones/day mild Shisha smoking.

The previous two results prove that Shisha is not popular among Bedouins and substituted by Gansha .

In the current study, most smokers (82.4%) said that they smoke as just a tradition (reported no precise cause) this means that smoking is meaningless habit and a fact in Bedouins life. This percent was just 30% (as a habit) among female medical students in Saudi Arabia according to **Al-Turki & Al-Rowais, 2008** [20] and also reflects a cultural variation in between the two genders.

In the current work, the second commonest motive for smoking was "friends pushed him to smoke (in 70.8%). This result is compatible with **Salah Aldin, 2008** [21] who found it as the first common cause of smoking among doctors in Ain Shams University Hospitals .

The third commonest motive was "for wasting time and overcoming boring sensations". This result may be due to the slow time pass of the desert environment and lack of work allover winter months. So, there is nothing else to do.

Imitation of parents and older relatives was a cause in 21%, a similar result 22% was the result of **Al-Faris, 1995** [22] in his study about smoking habits of secondary school boys in rural Riyadh in Saudi Arabia.

In the present study, the presence of other household smokers was prevalent in 89.4% of smoker Bedouins and this percent is even higher than the result of the **Centers for Diseases Control and Prevention (CDC), 2006** [23] which documented that 30% of students live in homes with other household smokers. This result shows to what extent smoking is prevalent among Bedouins .

About forty five percent of the Bedouin family are smokers i.e. prevalence of smoking in adult Bedouins equals 45.5% for both male and females).This figure is an indicator that about half of the Bedouins are smokers and smoking was a habit for most males. In fact, it is a very common habit in Bedouins community.

According to **Global Adult Tobacco Survey, 2009 of WHO** [12], the overall prevalence of tobacco use in Egypt was 19.7%. Hashish smoking may be responsible for high prevalence of smoking among Bedouins .

In the current study, time of first cigarette after wake up (onset of smoking in the day) was 26.1 minutes, 52.8% of them start smoking within not more than 5 minutes to be ready for act. This fact reflects a very high degree of nicotine dependence especially when compared to the results of **Global Adult Tobacco Survey, 2009** [24] which stated that 35.2% of daily smokers in Egypt smoked tobacco within 30 minutes of awakening (8.7% within 5 minutes of awakening).

In this work, the percent of income spent on smoking was 39.4 % of the income. This figure is high one and much higher than the result of **Yousef et al, 2000** [16] who estimated that current smokers in Alexandria city spent 23.1% of monthly family income on tobacco. This difference may be attributed to the common abuse of hashish and other drugs among Bedouins that increases the percent of income spent on smoking .

In about 58.9% of smoker Bedouins, work increases the smoking rate. This result may be emerged from that most common occupations found were specialists and skilled workers and these jobs are stressful and needs concentration. This result is in accord with the result of **Hussain et al, 1993** [25] who conducted a similar survey among English Hospital staff and noticed that effect of work is the most obvious issue resulting in progressive tobacco consumption (in 63.4%).

In the current work, marriage increases smoking in about 54% of the current married smoker Bedouins and this may be due to the stressful nature of the marriage responsibilities and duties. This result is not in agreement with the result of **Duncan et al, 2003** [26] who studied the impact of marriage on the licit and illicit drug users in England and stated that smoking is not reduced by marriage for either men or women i.e. marriage has no effect on smoking which was the opinion of just 25% of the current study subjects. This result reflects cultural differences as regard concepts of marriage between population of this study and those of a western community .

The effect of mood changes on smoking rate was studied in the current work and it was found that depressed mood increases smoking rate (in 78.2%). In the other hand, happiness and joy have no effect on smoking rate (in 50.3%) and increases smoking in just 34.1%. This result is incompatible with the result of **Shiffman & Rathburn, 2011** [27] study on variations in smoking rate and concluded that negative affect was not associated with smoking rate but positive affect was associated with higher smoking rates.

About 91% of smoker Bedouins saw that smoking is a bad and a killer habit while only 8.8% saw that smoking is a good method for wasting time, overcome stress, and makes them more social. This reflects the degree of refusal of smoking behavior among Bedouin smokers. This result is in agreement with **Hashim, 2000** [28] study among students of the College of Applied Medical Sciences in Saudi Arabia within the age range of 18 to 26 where 72% indicated that they were aware of the health hazards associated with smoking .

In the current work, 65.2% of smoker Bedouins saw that there is no difference in personality between smokers and non-smokers. The mentioned result was incompatible with the result of **Terracciano & Costa, 2004** [29] who studied the association between personality traits and smoking among American smokers and detected that current smokers scored higher than never-smokers on Neuroticism and lower on Friendliness and Carefulness .

As regard compliance of the Bedouin smokers towards smoking ban in public places like hospitals, buses or workplaces, it was found that 63.4% are compliant and stop smoking in public areas, while 36.6% were non-compliant. This result shows a poor compliance among Bedouins compared to a communities enacting indoor smoking ban as the study of **Edwards et al, 2008** [30] among smokers in New Zealand where high compliance was noticed among subjects (only 8% of employed adults reported Second Hand Smoke (SHS) exposure in work). This comparison encourages the use of smoking ban strategies.

In this study, about half (50.8%) of Bedouin smokers had tried to quit smoking before. This result is compatible with the result of **Centers for Diseases control & Prevention, 2006** [23] that documented over 5 out of 10 tried to stop smoking in the year 2005 among adolescents of Saudi Arabia.

In this study, the mean duration of stopping smoking was 7.6 months (2 days – 80 months). This result is in accord with the result of Michael, 2011 [15] who found that 40% of doctors who tried to quit smoking quitted for more than 1 month and less than 1 year .

In the current work, most common motivations for quitting smoking were for seeking health and fitness (39.4%), for religious considerations (14.2%). These results are similar to **Al-Haddad et al, 2003** [31] study of smoking patterns among primary health care attendees in Al Qassim region in Saudi Arabia and stated that health & religious considerations were the most important reasons for not smoking and for quitting.

In the present work, almost all who stopped smoking before (96.9%) depended on self-help in their quitting trials. Medications and psychotherapy had a minimal role in their quitting (just 3.1% for both) that emphasis the shortage of medical services like smoking cessation clinics and medical support for helping smokers who are thinking to quit. These results are compatible with the result of **Cohen et al, 1989** [32] who found that approximately 90% of quitters have used self-help.

The most common causes of smoking relapse among Bedouin smokers were exposure to a nervous situation (25.2%), without any apparent cause (20.1%) and nicotine craving (18.9%). These results are incompatible with the results of **Yang et al, 2006** [33] who discovered that the most common factors triggering relapse among Chinese male smokers were in social situations i.e. in the company of other smokers (34.3%), feeling negative or down (13.4%) and times of being alone (8.4%). These differences between Egyptian and Chinese results may be due to cultural differences where smoking was more associated with stress in Egyptian communities and more with joy in Chinese communities .

In the present work, the most common accidents occurred to smoker Bedouins as a direct result of their smoking habit were burning their clothes (in 90.2%) by falling down of small pieces of fire specially from joints because they are hand-rolled and not compressed as machine-rolled cigarettes, followed by burning their skin (in 60.4%) specially to hands and faces beside burn skin to adjacent people. The high incidence of accidents may be attributed to the deteriorated awareness due to heavy hashish smoking.

Fire accidents were found in 12.8% and car accidents attributed to smoking were found in 10.8%.These results are compatible with **Grout et al, 1983** [34] who found an association between the smoking habit of the drivers and road traffic accidents indicating an increased risk of accidents during the hours of darkness for drivers who smoke compared to drivers who did not smoke .

On the other hand, family problems like divorce and work problems were found in just 4.2 % and 2% respectively in the current work. These are very low percents in comparison to the study of **Doherty & Doherty, 1998** [35] who studied divorce among American adults and stated that Adults who smoked cigarettes at the time of the survey were 53% more likely to have experienced divorce than those who did not smoke. This dissimilarity emphasis the acceptability of smoking habits in Bedouins families and workplaces.

When studying the health problems present within this study subjects that can be ascribed to their smoking habits, it was noticed that for Chest problems Cough was found in 82.4%, Production of sputum in 71.6%, Wheezes in 47%, Lack of effort in 26.6% and chest burning pain in 13%. These results are much higher than the result of **Bozkurt et al, 2006** [36] who studied Patterns of active and passive smoking and associated factors in Turkey and documented the presence of a cough in 15.8% and the presence of sputum in 14.7% of smokers.

This difference may be due to high prevalence of hashish abuse and chronic heavy cannabis smoking is associated with increased symptoms of chronic bronchitis such as coughing, production of sputum, and wheezing .

In this study, severe COPD patients in need for admission were only 8 subjects (1.6%). This may be due to the fresh, dry and unpolluted air of the desert environment which reduces the development of severe COPD .

In the present study, other systems complications of smoking were less common than respiratory complications. The most frequent were teeth problems like tar tinge and dental cares (57.2%), nasal affection and rhinorrhea (42.6%), hoarseness of voice (36.6%), gastrointestinal troubles like heartburn, reflux or peptic ulcer (31.8%), impotence and other genitor-urinary problems (12.8%), low immunity and recurrent infections (12.4%), chronic reddening of eyes (10.8%) and cardiac diseases like coronary insufficiency (3.2 %). These results are incompatible with the results of **Mikhael, 2011** [(15)] where gastrointestinal troubles were the most common in 27% followed by fine tremors (13%) and Claudications in 9% .

In the current study, 63.8% of the subjects saw that Media is useless and has no effect on smoker's attitude toward smoking and 36.2% saw that Media is a useful weapon in the war against smoking. This result is similar to the result of **Popham et al, 1993** [(37)] who found that more than a third of the interviewed (34.3 %) indicated that the anti-smoking advertisements had played a role in their quit decision.

In this study, 53% of smoker Bedouins were against legal restrictions like funds for smoking in public places and 47% support the legal restrictions. This result is unlike the result of **Renaud & Cockshott, 2007** [(38)] study among French smokers resulted in that majority (about 76%) support for a law banning smoking in public areas and work-places. This dissimilarity illustrates the cultural gap between urbanized population and Bedouins community.

In the current work, the most common feelings of the Bedouin smokers during smoking absenteeism in fasting days of Ramadan were Nervousness (51.6%), sleeping most of the day (44.8%), Calmness (43%) and Lack of concentration (38.4%). These symptoms could be attributed to nicotine dependence.

In the present study, highly significant inverse relation was found between pack-year and level of education. Pack-year was considerably higher among those with lower educational levels (illiterates and who can read & write) and lower among those with higher levels (University & Institute). This may be due to the shortage of knowledge among lower levels of education. This result is in accord with the result of **Fotouhi et al, 2009** [(39)] who studied prevalence of cigarette smoking among residents of Tehran and noticed that smoking Pack-year index significantly decreased as education increased in smokers in a way that for each year of education, a decrease of 0.02 pack-years was seen.

On studying relation between pack-year and occupation, a highly significant relation was found. Pack-year was highest in the retired people (72.07) and lowest in students (3.56) and this may be attributed to the longer durations of smoking in the old retired people than the short durations in students. This fact was confirmed by correlation between pack-year and age where a highly significant direct relation was found.

Unskilled workers were the heaviest smokers in this work subjects (pack- year is more than 40) while specialists are moderate smokers (pack-year 23.54). This can be attributed to the difference in level of education and so knowledge about harms of smoking or due to the better physical fitness among hand workers. This result is compatible with the result of **Fujishiro et al, 2012** [(40)] study in America who found that male blue-collar and sales/office workers had higher rates of having consumed more than 20 pack-years of cigarettes than managers/professionals.

In this study, highly significant relationship was found between pack-year and presence of chronic health problems. People with chronic health problems were heavier smokers with pack-year of 43.41 while people without chronic health problems were moderate smokers with pack-year of 24.57. This result is well-matched with the result of **Sterling et al, 2008** [(41)] who stated that a definite dose-response relationship exists between smoking and disease; it appears that 40 pack-years is a crucial time period above which the incidence of serious consequences rises rapidly.

In the current work, there was no significant relation between pack-year and occurrence of work problems. This result may point to the smoking allowance in workplaces. This is compatible with the result of **Baker et al, 2002** [(42)] study about smoking and working environment in Wisconsin, USA and reported that heavy smokers are much less likely to work where smoking is not allowed in work places.

In the current study, there was a highly significant relation between pack-year and presence of household smokers. People with household smokers were moderate smokers (pack-year 31.4) while people who have no household smokers were mild smokers (pack-year 19.43). This result can be explained by that the presence of other household smokers encourages smoker to smoke more frequently.

There was no significant relation between pack- year and percent of the household smokers. Also, there was no significant relationship between pack-year and previous trials of smoking cessation i.e. people with previous trials are moderate smokers like who did not try to quit. Accordingly, heaviness of smoking does not affect the smoker attitude towards smoking cessation .

On studying relation between pack-year and feelings during fasting periods in Ramadan, highly significant relation was found between nervousness and pack-year. Heavy smokers tend to be nervous during fasting periods more than mild smokers mostly due to nicotine dependency. This result is compatible with **Klech, 1998** [(43)] who found that withdrawal symptoms in heavy smokers are more prominent .

On the other hand, no significant relation was found between pack-year and lack of concentration or sleepiness in the current work. These two symptoms could be attributed to fasting not to lack of nicotine.

There was no significant relationship between level of education and opinions about Media role against smoking.

Also, there was no significant relationship between level of education of the subjects and their attitudes towards legal restrictions on smoking in public places. This result is incompatible with the result of **Al-Delaimy et al, 2005** [(44)] in California Survey on attitudes to smoke free laws that showed a gradient of support by education with the least educated (96%) giving greater support than the most educated (90%).

CONCLUSION

Smoking is a common habit among Bedouins male in the Western Desert of Egypt. Smoking is hard to quit due to nicotine dependency. The mood of the smoker affects the rate of smoking. Smoking causes respiratory and non-respiratory complications. Level of education does not affect the smoking habit. There no effect of media on smoking habit.

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