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Smoking Pattern among Attendants at the Family Medicine Clinics of Cairo University, Egypt

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ABSTRACT:

Background: Cigarette smoking is the prime cause of preventable disease and death worldwide. **Objective**: study the smoking pattern among the attendants at the family medicine outpatient clinics of Kasr Al-Ainy Teaching Hospitals, Cairo University. **Methods**: A cross-sectional study investigated the smoking pattern in a systematic random sample of 200(199 males + one female) smokers aging 16-79 years. After verbal consent, the participants were inquired about their demographic features, smoking motives (Horn questionnaire) and nicotine dependence (Fagerström questionnaire). **Results**: Most of participants were male (99.5%), married (79%), attracted to smoking by peer pressure (68%) & craving(93.5%) below the age of 18 years and for an average duration of 25 years (59%), highly nicotine dependent(59%) and referred to medication as the main method of smoking cessation (64.5%). Nicotine dependence was significantly associated with presence of smokers among family members or friends, previous attempt to quit smoking and addiction ($p< 0.05$). 73% of smokers tried, mostly self-motivated (98%), because of existing health problems (44.9%) and coping with stress from social & work problems (35.4%) to quit smoking 3 times before for an average duration of 5 months (73%). **Conclusion:** smoking seems peculiar to males, particularly married ones who often get motivated by craving and start smoking below 18 years. Starting smoking early in teenage might explain their high nicotine dependence and failure of quitting smoking. Therefore, smoking cessation program should be a top priority and targeted to prevent smoking in adolescence.

Keywords: Smoking tendency, Smoking motivation, Family medicine.

INTRODUCTION

Tobacco use is recognized as a major epidemic worldwide. It is estimated that there are over 1.3 billion smokers worldwide.[1] Global predictions indicate that by 2025, smokers will consume 9 trillion cigarettes annually, rising from 5,530,474 million in 2004.[2,3] Over the past 20 years, tobacco consumption has fallen in most high income, also known as developed, countries.[3] On the other hand, developing countries have shown

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an increase of 3.4% per year.[4]It is estimated that over 80% of smokers currently reside in low and middle income countries.[5]In the Eastern Mediterranean Region the prevalence among males ranges between 25% - 62% while among females from 1.0% to nearly 8%.[6]

Tobacco smoking is one of the leading causes of preventable disease worldwide. It is associated with chronic diseases, economic losses to society, and a substantial burden on the health-care system. Tobacco smoking is a risk factor for over 25 diseases. It harms nearly every organ of the body, causing many diseases and reducing the health of the smokers in general. It is well established that smoking is a major modifiable risk factor for cardiovascular diseases as coronary heart disease and myocardial infarction, respiratory diseases and development of chronic obstructive pulmonary disease (COPD), asthma, as well as adverse reproductive effects and many others.[7] Tobacco use also represents the single greatest preventable cause of death worldwide. Tobacco-related diseases are expected to account for 11% of all deaths in developing countries by 2025.[8]Each year, nearly 5 million deaths occur due to tobacco related illnesses, and this is expected to more than double by 2030.[9]Smoking is identified as the primary causal factor for at least 30% of all cancer deaths, nearly 80% of deaths from COPD, and early cardiovascular disease deaths.[10, 11]

In Egypt, smoking prevalence has become a major public health problem. Over the past three decades, the number of smokers in Egypt has increased over twice as fast as the population.[12] According to findings of the Global Adult Tobacco Survey (GATS), 2009 approximately 20% of adult Egyptians (aged 15-65 years) use some form of tobacco products. This figure considerably increases when stratified by age groups to reach as high as 23% and 26% among the productive age groups of 25 – 44 years and 45 – 64 years respectively).[13]

Egypt is considered the biggest consumer of cigarettes in the Arab world. There is evidence of increasing prevalence of smoking, especially among the younger generations and females. Given the numerous diseases caused by tobacco use, the health care cost of treating these diseases is substantial. Estimates indicate that about 3.4 billion EGP were spent annually in Egypt to treat the diseases caused by tobacco use.[14]

Hence this study was conducted to determine the characteristics and smoking tendency patterns of smokers among attendants of the family medicine outpatient clinics at Kasr El Ainy Teaching Hospitals, Cairo University, to be used in the formulation of a smoking cessation program that could be implemented in these clinics.

Subjects and Methods:

***Study setting and design*:** A cross-sectional study was conducted at the family medicine outpatient clinics of Kasr El-Ainy Teaching Hospitals, Cairo University in the period from August 2010 to January 2011.

***Study participants and sampling technique*:** Subjects were enrolled from the two family medicine outpatient clinics. A sample of 200 smokers was chosen for the study. This sample size depended on the ability to recruit participants on each working day. An averaged 3–5 smokers/day were included by systematic random sampling, where every fourth patient meeting the study inclusion criteria was approached, on three working days per week during the working hours of the clinics. Subjects were included if they were above the age of 15 years, were current cigarette smokers and voluntarily agreed and gave consent to participate in the study.

Study tools: A pre-designed structured interview questionnaire consisting of three parts was presented to the participants:

1. The first part included socio-demographic characteristics, smoking history, previous quitting attempts and reasons for returning

to smoking, usage of different forms of tobacco other than cigarettes, usage of drugs, problems faced due to smoking, readiness to quit, knowledge of available methods to quit and readiness to use medications as an aid to quit smoking.

2. The second part included the Fagerstrom Questionnaire[15]; the 6-item questionnaire was used to determine participants' level of nicotine dependence. Each question is followed by a number of answers and an appointed score is given to each answer. The final score of the questionnaire is calculated by adding the scores of the six questions where the minimum score of the questionnaire is 0 and the maximum score is 10. Scores are divided into three categories; low level of addiction (between 0 - 3 points), medium level of addiction (between 4 - 6 points), and high level of addiction (between 7 - 10 points).For comparison of study groups, the results of the questionnaire were further divided into two groups as follows; High dependence (scores between 7 and 10) and Low/Intermediate dependence (scores below 7)based on scoring and classification of the original questionnaire.[15]

3. The Horn Questionnaire.[16] is a 21-item questionnaire that assesses smoking motives. Participants indicate the extent to which they agree with statements pertaining to their reasons for smoking (e.g., “I find cigarettes pleasurable”) using a 5-point Likert scale where; Always = 5, Frequently = 4, Occasionally = 3, Seldom = 2, Never = The questionnaire identifies seven motives namely; stimulation, handling, pleasurable relaxation, tension reduction, craving, habit and social motives. To calculate the score for each motive, the scores given to each of the three questions representing that motive are added. The score of each motive ranges from a minimum of 3 to a maximum of 15 points. The final score, as described in the original questionnaire, is categorized in three categories; scores 11 or above represent a strong motive, scores between 7 and 10

represent a moderate motive, scores 6 and below represents a weak motive. The scores of the participants were further categorized into two groups for ease of comparison between study groups as follows; High motives (scores equal to and above 11), Low motives (scores below 11).

The initial language for all questionnaires was English. All questionnaires were then translated into the local Arabic language and then back translated. The Arabic versions were used to collect the study data.

Data management and statistical analysis:

All collected data were revised for completeness and logical consistency. The Statistical Program for Social Sciences (SPSS) version 15 was used for data analysis. Analysis included simple frequencies and descriptive analysis (Mean and Standard Deviations). According to the educational level, the participants were divided into basic educational level which included primary education or less and above basic educational level which included preparatory level or more. The occupation of participants was classified into 2 groups; those with lower jobs and these included manual workers on daily wages, farmers, industrial workers and skilled workers. The higher jobs included employees and professionals. The association between nicotine dependence of smokers (as classified by the Fagerstorm questionnaire scores) was explored against various factors using the Chi Square test for statistical significance. A p value < 0.05 was considered significant.

Ethical Considerations:

The study design and methodology was approved by the Scientific Research and Ethics Committee of the Family Medicine Department, Faculty of Medicine – Cairo University. Informed verbal and written consents were obtained from the participants. Data confidentiality was preserved throughout the study in accordance with the Revised Helsinki Declaration of Bioethics.

RESULTS

Our study group included 200 participants; 199 males and only one female. Most of the

participants were above 40 years of age (52.5%) and the mean age was 41.4 ± 13.80 years. Regarding the marital status the majority of them were married (79%) [Table 1].

Over half of the participants (51.5%) were in the lower educational category (primary education or less) and 48.5% were in the higher educational category (preparatory level or more). Among those who were in the lower educational category 31% had primary education 15.5% were illiterate and 5% had a literacy certificate. On the other hand, participants within higher educational group shows that 20% had a university certificate, 10.5% of participants had preparatory education, 7.5% had a diploma and 2.5% had a general secondary certificate [Table 1].

Slightly over half of participants reported that they were below the age of 18 years when they started smoking (59%).The age of starting smoking ranged from 6-47 years with an average of 16.67±5.12 years. The average duration of smoking was 24.72±13.95 reaching up to 61 years. Participants smoked on average more than one packet per day (24 cigarettes) which costs them an average of 194.74 L.E per month [Table 1].

It is to be mentioned that other forms of tobacco has been used by the participants in addition to cigarettes. Almost half of the participants (46.5%, n=93) usedshisha while other forms like pipes and cigars represented 3.5% and3% respectively. It was also evident that the most commonly used addicting substances among our participants was hashish (24%), alcohol (11.5%) and other substances that were not included in our list especially addictive medications e.g. tramadol (12%).

When participants were asked about their reasons for smoking, it was found that most started smoking due to peer pressure and to do like their friends (68%). Other reason such as curiosity to try smoking, experimentation, availability of cigarettes in their work and pressure from a family member like an uncle or older brother to smoke accounts for 23.5%. Only 9% of the participants mentioned that

the reason was to do something when bored. It is noteworthy that only 4.5% of participants mentioned copping with stress as a reason to smoke [Table 1].

Table (1): Socio-demographic and smoking characteristics of the participants

Socio-demographic Characteristic		**Frequency (n=200)**	**Percent (%)**
1- Sex	Male	199	99.50
	Female	1	0.50
2- Age (in Years)	< 40	95	47.50
	≥ 40	105	52.50
Mean ± SD: 41.4 ±13.80			
3- Educational level†	Basic	103	51.50
	Above basic	97	48.50
4- Job†	Lower	99	49.50
	Higher	101	50.50
5- Marital status	Married	158	79.00
	Unmarried	42	21.00
Smoking Characteristics			
1. Age to start smoking	< 18 years	118	59.0
	≥ 18 years	82	41.0
2. Main reasons to start smoking	Smoker friend and Peer Pressure	136	68.0
	Out of Curiosity	12	6.0
	Experimentation	11	5.5
	Availability of cig. At work	14	7
	Pressure from family member	10	5.0
	Do something when bored	18	9.0
	Coping with stress	9	4.5
3. Quitting trials	Yes	147	73.5
	No	53	26.5
4. Quitting Motivations	Self-motivation	196	98.0
	Medical Motivation	4	2.0
	Min	**Mean ± SD**	**Max**
5. Mean Age to start smoking	6.0	16.67 ± 5.12	47.0
6. Smoking duration in years	1.0	24.72 ± 13.95	61.0
7. No. of cigarettes smoked /day	1.0	23.92 ± 15.51	100.0
8. Cost/month (L.E.)	7.50	194.74 ± 146.67	960.0
9. No. of quitting times	1.0	2.61 ±1.35	20.0
10. Quitting duration (in months)	0.33	2.41 ± 1.62	4.9

†Refer to the methods section for grouping definitions

Nicotine dependence was assessed by the Fagerstrom questionnaire; which revealed that nearly two thirds of the participants were highly dependent on nicotine (59.5%). In contrast, those with low or intermediate nicotine dependence added together represented 40.5% of the study participants. There was significant relation between presence of a smoker in the family and the high degree of nicotine dependence (P=0.001). Similarly, presence of a smoker friend was significantly associated with high nicotine dependence (P = 0.02) [Table 3].

Regarding trials of participants to quit smoking, smokers that never tried to quit were those with high nicotine dependence (P=0.002). Furthermore, those smokers who were addicts were more liable to have high nicotine dependence (P = 0.014). On the other hand, those using other tobacco forms showed no significant difference between those with high and low/intermediate nicotine dependence [Table 3]. The majority of the participants tried to quit smoking (147 participants), about three times before (2.61 ± 1.35) and the longest duration of quitting was nearly 5 months [Table 1]. The main reasons behind their trials were being already suffering from health problems (44.9%), followed by

Table (2): Percent distribution of smoking motives among studied smokers

Motives		Frequency(n=200)	Percent (%)
Stimulation	*Low*	163	81.50
	High	37	18.50
Handling	*Low*	142	71.00
	High	52	29.00
Pleasurable relaxation	*Low*	100	50.00
	High	100	50.00
Tension reduction	*Low*	36	18.00
	High	164	82.00
Craving	*Low*	13	6.50
	High	187	93.50
Habit	*Low*	135	67.50
	High	65	32.50
Social	*Low*	78	39.00
	High	122	61.00

being afraid of future health problems (27.9%), whereas doctor's advice was the reason for less than one fifth of the participants to quit smoking (12.9%) and the cost of the cigarettes was mentioned by 11.6% of participants. Other reasons included religious reasons and experimenting ability to quit representing 22.5% [Table 4].

It is noteworthy that the majority of participants who tried to quit smoking before did this because they were self-motivated to quit (98.0%) [Table 1]. Although one fourth of participants did not know of the availability of smoking cessation methods (24.5%), medications was the most commonly mentioned method (64%) [Figure 1].

When it comes to the reasons that participants returned to smoking after quitting, it was found that the main reason was coping with stress (35.4%) due to social and work problems mainly. Socializing was the second reason mentioned by one third of the participants (33.3%), where smokers returned to smoking due to others (smoking friends and work colleagues mainly) giving them cigarettes to smoke with the group. The third reason was feeling uncomfortable when not smoking (22.5%). Other reasons (8.8%) were trivial among our study group e.g. because of being bored or to keep their weight down [Table 4].

Figure (1) shows the percent distribution of the methods of smoking cessation that the study participants have heard about. From the figure it is clear that the majority of the participants referred to medications as the main method for smoking cessation (64%). The rest of the methods of smoking cessation were not known significantly by the participants. Also, it was found that 24.5% of the participants didn't know of the availability of smoking cessation methods.

Table (3): The relation between nicotine dependence of smokers and some variables

Variables		Dependence level				P-value•
		Low/Intermediate (n= 81)		High (n= 119)		
		no	%	no	%	
Family member smoker	Yes	65	36.30	114	63.70	0.001*
	No	16	76.20	5	23.80	
Spouse is an active smoker	Yes	1	1.23	1	0.84	0.842
	No	80	98.76	118	99.16	
Friend is a smoker	Yes	69	37.90	113	62.10	0.023*
	No	12	66.70	6	33.30	
Previous self-trials to quit smoking	Yes	69	46.90	78	53.10	0.002*
	No	12	22.60	41	77.40	
Smoking other tobacco forms†	Yes	33	35.10	61	64.90	0.141
	No	48	45.30	58	54.70	
Presence of Addiction¥	Yes	32	31.40	70	68.60	0.014*
	No	49	50.00	49	50.00	
Presence of health Problem‡	Yes	76	39.40	117	60.60	0.091
	No	5	71.40	2	28.60	

†Smoking other forms of tobacco such as shisha, cigar, and pipe
¥Addiction to hashish, or alcohol and tablets e.g. Tramadol
‡Health problems included chronic cough, hypertension, diabetes and ischemic heart diseases.
•P- value is calculated by the chi square test
* significant at P< 0.05

Table (4): Reasons of quitting and returning back to smoking

Item	Frequency (n=147)	Percent (%)
Reasons to quit smoking•		
Worried about future health	41	27.89
Health problem already present	66	44.90
Cost	17	11.56
People Persuading	14	9.52
Smoking restrictionsat work	1	0.68
Doctor's advice (For prevention of non-existing health problem for the smoker)	19	12.93
Family's health (for fear of passive smoking on family members)	6	4.08
Others†	33	22.45
Reasons of return to smoking after quitting		
Coping with stress	52	35.37
Socializing	49	33.33
Feeling uncomfortable	33	22.45
Others	13	8.84

•Multiple answers were allowed
† Religious reasons and experimenting ability to quit

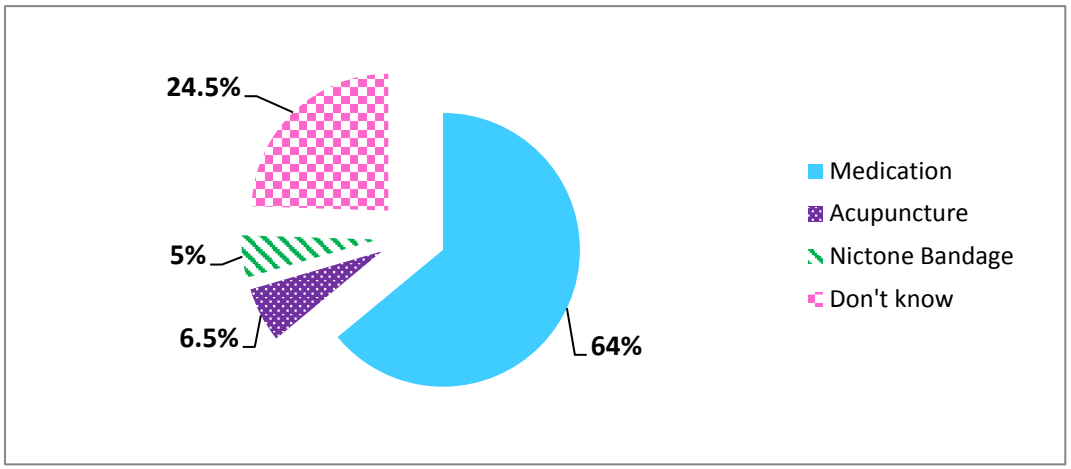

Figure 1: Awareness of smoking cessation methods among studied participants.

DISCUSSION

In the current study, smoking seemed peculiar to male gender; 99.5% of our smokers were male. This greatly matches the study of the Egyptian Smoking Prevention Research Institute (ESPRI) in 5 villages in Egypt where 938 smokers were interviewed of which 935 (99.7%) were males and only 3 (0.3%) were females.[17] This may be related to the Egyptian culture which considers that female smoking is inappropriate. When assessing the age at which the participants started smoking, it was found that slightly over half of participants reported that they started smoking below 18 years (59%), although 18 years is the legal age for purchasing tobacco in Egypt. Similarly, the Global Adult Tobacco Survey (GATS) done in Egypt in 2009 found that over half (57.6%) of ever daily smokers initiated daily smoking before age 18 years.[13]

In this study it was found that the presence of smoker friends and peer pressure were the main reason for participants to start smoking (68%). The other reasons of significance included:

curiosity, experimentation and the pressure of a smoking brother (23.5%). These results were similar to the results of a survey done in Canada (year) to determine the reasons of smoking among Canadian youth, where they found that the presence of a smoker friend led 70% of their participants aged 15 – 19 years to start smoking and 22% started smoking due to curiosity while 10% started smoking because their parents smoked.[18]The difference in the percent of youth who started smoking due to the presence of a smoking father between the participants (3%) and the Canadians (10%) may be becausethe families of our participants, including their fathers, were against their smoking habit and they even

tried to stop them from smoking. Additionally, many of the participants admitted that when they started smoking, they smoked away from their parents to avoid punishment if they were seen smoking. It is evident from our study that the strongest smoking motives among the participants as assessed by Horn's questionnaire were craving (93.5%) and tension reduction (82%) this was followed by social motives (61%) and relaxation (50%).This result is quite different from what one would have expected as most Egyptians when being asked directly what the reasons they continue to smoke were their answer would be because it is a habit. In a study done in the University of Missouri, Columbia it was found that a desire to reduce craving (62.8%) and habit/automatic processes (42.8%) were the most frequent motives.[19]

In another study in England, enjoyment and stress relief were the most commonly reported motives (51% and 47%, respectively).[20] From the above, it is clear that the motives that cause smokers to continue smoking varies greatly from one population to another and even in different groups within the same population. Thus it is important when formulating a smoking

cessation program which includes behavioral change messages that these messages be tailored according the individuals' motives to which the program will be delivered.

In our study it was found that 44.9% of participants tried to quit smoking before because they were already suffering from health problems. The second reason mentioned was that they were afraid of future health problems (27.9%). Furthermore, doctors' advice to prevent non-existing complications represented 12.9% and fear for the health of the family 4 %. Thus quitting for health reasons in the participants represents totally 89.7%. This compares with Larabie study in Canada, 2005 that found that in most of its participants quitting attempts were made for reasons of health (64%).[20]

By using Fagerstrom questionnaire it was found that those who were highly dependent on nicotine (59.5%) were more than those with low or intermediate nicotine dependence added together (40.5%). This demonstrates that most of the smokers attending the clinics will also require pharmacotherapy for their proper management during a smoking cessation program. Furthermore, most of the smokers who never tried to quit were those with high nicotine dependence (77.4%). This result compares with another study that suggested that nicotine dependence plays a role in quitting behaviors among young adult daily smokers.[21]

The quitting attempts carried out by the participants were mostly unaided and occurred because the participants were self-motivated to quit (98.0%). This is similar to a study conducted in Canada which was done on 146 participants and concluded that most quit attempts were unaided (64%).[20]These results show that most of the smokers who try to quit do this on their own without help and without continuous exterior motivation which may be the reason most of these

attempts fail.

This shows the importance of having well formulated smoking cessation programs to aid these smokers and it also shows that smoking cessation programs should place greater emphasis on the dynamic nature of motivation in the attempts to quit.

The main reasons that made the participants return to smoking were coping with stress (35.4%) due to social and work problems mainly and socializing (33.3%) This is similar to studies which showed that persons who quit smoking and subsequently relapse often report that returning to smoking was triggered by a stressful experience or negative affective state.[22]

When studying the other forms of tobacco used by the participants it was found that 46.5% of the participants smoked shisha. This was higher than the results of the WHO reporting water pipe smoking to represent 24%–30%of all smoking patterns in all age groups.[23] The difference in the results may be due to the difference in the sample size or the sampled population, but what is evident from both studies is that shisha smoking is the second most commonly used form of tobacco among Egyptians which is considered by the majority of its users as less harmful to health and as a means to aid in cigarette smoking cessation since it is not as available as cigarettes. Thus, in any smoking cessation program in Egypt, asking about shisha smoking is important for proper cessation of all forms of tobacco smoking.

In conclusion, formulating a smoking cessation program is a priority health issue, especially in view of the current situation where over half of participants started smoking before reaching 18 years. Furthermore, the greater majority of smokers included in our study (147 participants) have previously tried to quit by themselves due to suffering from an already existing health problem (44.9%) or due to fear of being ill in the future (27.9%)

but failed. Family physicians should do more effort in detecting smokers in their practice and increasing their awareness on the availability of various methods of smoking cessation as it was found that 24.5% of the included smokers did not know of the availability of smoking cessation methods. Based on the results of this study, several recommendations have originated;

1. All family physicians should be trained to be able to assess the smoking status of patientsandgive brief advice about smoking cessation to every smoker.
2. Efforts should be targeted to prevent adolescents from starting to smoke, as earlier initiation of smoking is associated with dependency, more morbidity and mortality affecting the productive portion of the population and more difficulty with quitting.
3. A smoking cessation program introduced in family medicine outpatient clinics should be formulated and tailored according to the characteristics of the attendants presented in this study.

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