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RESEARCH ARTICLE

**STUDY OF THE SITUATION OF ACTIVE SMOKING IN THE AREA OF EL-TARF
(NORTH-EAST OF ALGERIA)**

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ABSTRACT

This work involved a random sample of the population of the region of El-Tarf. A total of 200 people were surveyed.

The study of smoking status is given by the terms of prevalence; it specifies standardized proportion by age and sex of people who smoke cigarettes daily or occasionally.

The information collected in our investigation led us that smoking is a real problem in our region, the results show:

- High prevalence of smokers to 70%.
- The majority of these smokers are young men aged 21-30 years.
- The average age of onset of cigarette consumption is between 16 and 20 years.
- The average consumption is 5-10 cigarettes a day.
- Smoking prevalence is higher in administrative areas, and free works among security officers, compared to the education sector.
- The prevalence of smokers is lower than that of non-smokers in the different levels of education (if any has in primary schools is remarkable among high school students).
- The prevalence of active smoking is higher among people suffering from diabetes, hypertension, anemia, kidney failure and cardiovascular disease.

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INTRODUCTION

Everybody now knows that smoking is harmful to health, many of these deaths are related to different forms of cancer and especially lung cancer as well as cardiovascular disease. Smoking significantly reduces life expectancy of smokers. A recent study suggests that smokers are at a disadvantage of about nine years compared with the average life expectancy of the population (73 years versus 82 years) (Marleau and Garvie, 2012). Smoking is also associated with several chronic diseases that greatly affect the quality of life for people in their daily (asthma, bronchitis, emphysema, heart disease and cerebrovascular disease, etc.). Significant direct costs are attributable to the monitoring and treatment of these health problems. Moreover, these are diseases that cause disability and therefore significant indirect costs, including lost productivity and mental and psychosocial health problems among those affected and their families. In the next 50 years,

the number of deaths due to smoking is estimated that 450 million people. The effects of the tobacco epidemic on the health of populations worldwide are well established. In Africa, at least 845 000 people die due to smoking each year. Half of regular smokers who start smoking as teenagers will die of smoking. If this trend continues, smoking will be responsible for the death of 250 million children and adolescents most of which is in developing countries. We know that in many countries smoking is the leading preventable cause of premature death (Mackay *et al.*, 2006). Algeria is no exception to this phenomenon; it is fertile ground for its development. She is one of many countries where people start smoking at an early age; with an age of initiation average around 15 years. Knowledge about the risks related to the use of tobacco on health have led the World Health Organization and its partners to define a strategy, prevention and monitoring of this phenomenon, but very modest success has been recorded for tobacco control in those countries. However the control of this phenomenon can occur without the development of a reliable database on tobacco use and the characteristics of its spread in certain segments of the population, essential objectives of comprehensive tobacco survey system (HSWG) (WHO, 2008).

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The study of smoking status is given by the terms of prevalence, it specifies standardized proportion by age and sex of people who smoke cigarettes daily or occasionally. This work aims to:

- Study the distribution of smokers by age in the region of El-Tarf.
- Assess the status of cigarette smoking in consumer matters in the region of El-Tarf.
- To study the distribution of smokers by various pathological cases.
- The results obtained will allow our states to develop and implement strategies able to stem or prevent smoking among the population.

MATERIALS AND METHODS

Experimental study took place in the region of El-Tarf, north-east of Algeria. Established surveys were applied at different levels, or in public areas and also in the education and health companies.

Type of study

The present work is a random survey of epidemiological study of the situation of tobacco consumption in the region of El-Tarf. The collection of information is done by the administration of an anonymous and voluntary individual questionnaire on people (all ages combined) focusing on the following parameters: the age ; number of cigarettes smoked per day ; age of the first cigarette consumed ; level of study ; associated diseases and profession sectors.

Harvesting techniques and data processing

To collect the data we used the technical structured interview using a questionnaire. Data entry and analysis (calculation of frequencies and percentages, comparing percentages) was performed using the software and Microsoft Excel. Also, we used Microsoft Excel for preparation of tables and graphs. The results are schematically represented and tabulated.

Study limitations and challenges

Apart from the financial problems governing the entry and printing of such a large number of survey protocols, the following difficulties were encountered during our investigation:

- Direct Indirect Refusal to certain subjects to respond to our questionnaire.
- Some surveys protocols have been lost, and sometimes other did not contain all the information or others had inaccurate and insufficient information, which reduced our survey sample.

RESULTS

General smoking distribution

Of all those surveyed, we found that 70% of the population are smokers, the rest 30% are non smokers or have stopped smoking (Table 1).

Table 1. General distribution smoking at the El-Tarf region

| Groups | Smokers | Non smokers | Total |
|----------|---------|-------------|-------|
| Number | 140 | 60 | 200 |
| Rate (%) | 70 | 30 | 100 |

Table 2. Smoking Age Distribution

| Ages groups (years) | 12-20 | 21-30 | 31-50 | + 50 |
|---------------------|-------|-------|-------|-------|
| Number | 30 | 53 | 34 | 23 |
| Rate (%) | 21,42 | 37,58 | 24,28 | 16,42 |

Table 3. Age Distribution smoking the first cigarette consumption

| First cigarette age (years) | 10-15 | 16-20 | + 20 |
|-----------------------------|-------|-------|-------|
| Number | 48 | 57 | 36 |
| Rate (%) | 34,28 | 40,71 | 25,71 |

Table 4. Smoking Distribution by number of cigarettes smoked per day

| Cigarettes/day | -5 | 5-10 | 12-20 | +20 |
|----------------|-------|-------|-------|------|
| Number | 31 | 51 | 42 | 16 |
| Rate (%) | 22,14 | 36,42 | 30 | 11,4 |

Table 5. Distribution smoking in professional sectors

| Profession | Smokers (%) | Non smokers (%) |
|-----------------------|-------------|-----------------|
| Administrative sector | 53,96 | 46,03 |
| Free work | 90,72 | 9,27 |
| General education | 28,26 | 86,52 |
| State security agents | 80,53 | 13,42 |

Table 6. Distribution smoking in education levels

| Education level | Smokers (%) | Non smokers(%) |
|-----------------|-------------|----------------|
| Primary | 00 | 100 |
| Middle | 8,05 | 25,42 |
| Secondary | 40,38 | 57,69 |
| University | 31,11 | 58,33 |

Table 7. Distribution by smoking related diseases

| Diseases | Smokers (%) | Non smokers(%) |
|-------------------------|-------------|----------------|
| Diabetes | 75 | 25 |
| Hypertension | 55,07 | 44,92 |
| Renal failure | 70,93 | 29,06 |
| Anemia case | 81,25 | 18,75 |
| Hypercholesterolemia | 33,33 | 66,66 |
| Male infertility cases | 66,66 | 33,33 |
| Cardiovascular diseases | 87,09 | 12,90 |

Smoking age distribution

Analysis of the results (Table 2) shows that of the total number of smokers interviewed, the highest percentage is that of the age group between 21 and 30 years with a percentage of 37.58%, followed by age class 31-50 years, then the period between 12-20, and then rank those aged over 50 years. Smoking.

Smoking distribution by age of first cigarette consumption

A 40.71% of smokers started smoking since the age of 16-20 years, 34.28% of them started smoking 10 to 15 years (Table 3). The final installment is that of the people who started smoking beyond the age of 20 years (25.71%).

Smoking distribution by number of cigarettes smoked per day

A 22.14% of people smoke less than 5 cigarettes a day, the percentage of smokers who consume between 5 to 10 cigarettes

is a bit higher. Smokers who consume 12 to 20 cigarettes per day is 30%. The rest that consumes more than one cigarette per day paquette represents only 11.42% of the total (Table 4).

Smoking distribution by profession areas

The rate of smokers is very interesting for the field of free work and those working as security officers in the administrative sector average, and minimum in the field of general education (Table 5).

Smoking distribution in education levels

Within the population questioned, the smoking rate is zero in primary schools, secondary maximum level and low to moderate between the middle school and university (Table 6).

Smoking distribution by related diseases

In most cases, smokers have high levels of pathological cases compared with nonsmokers including cardiovascular disease marked the highest value (Table 7).

DISCUSSION

Just like alcohol, tobacco is a drug that millions of people cannot do without. Generally smoking or tobacco use causes adverse health effects. However, quitting smoking is not an easy thing for addict's cigarette (Bungener *et al.*, 1977). Tobacco is the leading preventable cause of death worldwide according to WHO. Close to 4.9 million deaths per year, a figure expected to increase to 8.4 million by 2020. There are nearly 23 tobacco-related diseases (Bettcher *et al.*, 2008; Hill and Laplanche, 2003). From our results and on all the people questioned in our survey on smoking in the region of El-Tarf, overall smoking prevalence has reached 70% limit. Further analysis of these results reinforces concerns or we found that the vast majority of these smokers are young men around 21-30 years. A study conducted by WHO in the year 2005 shows a higher prevalence of smokers of less than 27 years with a rate of 50%. The same study shows that 25% of smokers are younger than 21 years and 25% of smokers are younger than 38 years. Our investigation also indicates that the average age of onset of use of cigarettes is between 16-20 years old, this may be due to several factors that influence smoking. Some of the factors on which it is difficult to intervene while others can be changed (Arwidson *et al.*, 2004). Another survey also indicates that the average age of onset of smoking is 16 to 20 years, gender analysis shows that smoking prevalence is significantly higher in men (Smith and Leggat 2007).

From a survey in some North African countries including Tunisia and Morocco, the average age of onset of smoking is, respectively, between 19-20 years and 23 years (Mohamed *et al.*, 2006). The smoke is the most common mode of tobacco use in our contemporary world. Mainly tobacco is consumed as cigarettes but also cigars; it is also popular, chewed or smoked in a pipe (Ghadiarian, 2002). Tobacco smoke contains nicotine (toxic alkaloid for the cardiovascular system and especially responsible for the addictive) and also other chemicals hazardous to health, including those resulting from the

combustion of tobacco, paper and additives incorporated into the cigarette. The most dangerous are the carcinogenic tars and carbon monoxide (Kan *et al.*, 2009). With regard to the number of cigarettes smoked per day, this study shows that the average consumption is 5-10 cigarettes per day variable. The number of cigarettes smoked is a poor index of the amount actually absorbed nicotine, carbon monoxide (CO) and toxic; it depends essentially on how the smoker smokes, that is to say the intensity of the flashes, the depth of inhalation, the more or less complete combustion of cigarettes, according to standards established by WHO, the investigation of this organization in Algeria reveals that 60% are light smokers (1-5 cigarettes a day), 35% are smokers means (6-10 cigarettes per day) and 5% are heavy smokers who consume more than one pack of 20 cigarettes per day (WHO, 2005).

Other studies confirm this trend in the Maghreb. In Morocco the average consumption is 16 cigarettes per day (Chaouki *et al.*, 2004). In Tunisia the average number of cigarettes smoked per day is about 18 cigarettes a day (Radhouane *et al.*, 2002). Because of the difficulty seeing the impossibility to ask about smoking women in the region, we have not been able to consider this part of the population, smoking among women remains taboo in our conservative society despite several studies in our country and even in other neighboring countries such as Tunisia or Morocco, show a significant increase in smoking rates among women. WHO reports a prevalence of 43% among men and 6.5% among women (WHO, 2005). The survey on the prevalence of smoking in the workplace in the region of El-Tarf concerned administrative sectors, free work, general education and that security agents (state security) shows the highest prevalence among people who practice free work followed by security agents (state security). Other surveys on workplace smoking in general (all sectors of confused activity) where specific (health sector) in other countries show lower prevalence between 10-30% for the health sector in particular Oman: 10%, Bahrain: 14%; Kuwait: 18.4%; Morocco: 19.1%; Tunisia and Sudan 30.4%: 30%. (Chaouki *et al.*, 2004) and a survey in France found a national prevalence of smoking in the workplace by 31% (McCurdy *et al.*, 2003). In most low-income countries, the prevalence of smoking between different socioeconomic groups varies significantly. Thus, individuals whose socio-economic status and education levels are low smoke more than educated individuals whose socioeconomic level is high (WHO, 2011). Smoking is a behavior maintained and amplified by pharmacological dependence, and never met a risk is not sufficient to change this behavior. In younger half of an age group around 20 years smoke and half of it risk of dying from a tobacco-related disease. The impact of marketing and advertising developed by the tobacco industry towards this target population is considerable; they are based on values which are sensitive adolescents (Rebellion, freedom, seduction ...) frequently diverting (Guilbert *et al.*, 2005).

In this study, the results reported a prevalence of smoking more lower among students of secondary and higher level of study, the prevalence of smoking is still growing with smoking behaviors modeled on the Western system under the influence of proliferation of advertising by the tobacco industry. The prevalence has tripled in 20 years (Warren *et al.*, 2006). A survey conducted by the Scientific Institute of Public Health

confirms the constant asked, in January 2010, a study of Tacking Health Inequalities in Belgium (Tahib), the level of education is an important factor of health: the higher the level education, the higher the level of health is good (Tourani *et al.*, 1993). The behavior analysis reveals significant changes in behavior, despite the media's role in raising awareness of the general population and young people in particular about the harms of smoking, and despite the existence of Algerian legislation on tobacco control. Our results also show that diabetics are so many smokers, smoking remains one of the risk factors triggering the well known diabetes today. Numerous studies since the 1990s have shown a link between smoking and the risk of developing type 2 diabetes in men as in women. This risk is dose-dependent: the more a person smokes, the greater their risk of developing diabetes is great, especially if it's a woman. The rate of hypertensive smokers is higher than that of non-smokers, the acute effects of cigarette smoking are an increase in mean arterial pressure and heart rate, increasing vasopressin secretion and catecholamines, decrease in glomerular filtration and filtration fraction (Ritz *et al.*, 1998).

Upon taking the first two cigarettes, there is a rise in blood pressure (BP) both systolic BP and diastolic (Amann *et al.*, 2000), it appears that the rise in PA is due to the activation of the renin-angiotensin and the sympathetic system (Orth, 2002). From our results we noticed that the rate of smokers attacked by kidney failure is more month high compared to that of nonsmokers. Other studies have found that hypertensive patients, diabetics and patients with kidney disease are more at risk of worsening renal function than non-smokers (Klungsoysr *et al.*, 2006). A third prospective study of 23 500 people for over 20 years shows a relative risk of renal failure 2.5% in smokers and tobacco-attributable risk of 31% (Warmoth *et al.*, 2005), another study involving hypertensive patients for over seven years found that renal function, despite controlling the proper blood pressure was aggravated by smoking: the decrease in glomerular filtration rate was twice as high among smokers (Bjartveit and Tverdal, 2005). We respect cardiovascular disease our study showed a more severe increase in the group of smokers. Whether active or passive, smoking with smoking, acts as a major risk factor and independent arteriopathies members and cardio - vascular diseases (Zanetti, 1998), 67.4% of patients with hyperuricemia are smokers (Tomita *et al.*, 2000).

From our survey we found that the effects of smoking are well documented in smokers with different types of anemia, including reducing the number of red blood cells and hemoglobin and hematocrit is due to the decreased erythropoietin (manufactures the GR) leads to anemia. Most smokers have a risk of anemia due to moderate to severe renal impairment. This is due to the fact that the kidneys normally produce the chemical messenger, which gives the signal bone marrow to produce more red blood cells. The kidneys do not function effectively, they and bone marrow do not receive the message to manufacture red blood cells, red blood cell production is in deficit (Molander *et al.*, 2000). Furthermore, smokers have on average rate more or less marked hypercholesterolemia, it is believed that the tobacco affects cholesterol and triglycerides as it multiple (fatty lipids) in the

blood. This is largely due to the chemical properties of the ingredients present in cigarettes and in particular nicotine. It is important to have a balanced cholesterol. When smoking, cholesterol levels are high and you become subject to blood problems such as blood clots. These clots can do damage, in particular by reducing the amount of oxygen consumed by the body. Excessive smoking may result in cases of male infertility, certain components of the cigarette smoke such as aromatic hydrocarbons poly have an action similar to that observed in the bronchial tract, that is to say a inhibition of ciliary movement (Pacifci *et al.*, 1993). This was confirmed by observation, with smoking patient, structural abnormalities of the flagellum by electron microscopy (Zavos *et al.*, 1998).

Conclusion

Responsible for 90% of lung cancers and 60,000 deaths per year, tobacco use is the leading cause of preventable death. If nothing is done, the number of victims could double by 2025, experts predict. In light of the objectives, this study shows that smoking is present in the region of El-Tarf there or men smoke more than women. Smoking is more common in individuals whose socio-economic status and education levels are low. The most current form of smoking is especially the smoke of the cigarette. Faced with this public health problem, many countries have engaged in recent years in tobacco control by involving administrative actors, associations, medical or educational. Such a strategy must be part of a national tobacco control policy and include concrete measures to discourage young people from using tobacco but also provide the necessary and useful support to help people wishing to quit smoking and to break free the influence of tobacco dependence.

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