

## **The Effects of Smoking on the Health of the Urban Population**

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### **Abstract**

After undergoing a harvesting and processing process, nicotine is a product available in a very advantageous distribution system, such as cigarettes, chewing tobacco or snuff. In both women and men, the spread of all chronic respiratory diseases (bronchitis, asthma, lung cancer, etc.) is closely related to the level and characteristics of smoking. As a topic of topical interest and national interest, a pilot study was conducted in the first part of the study to determine the perception of smoking and the degree of information about its consequences among the population in Bucharest. Therefore, in order to implement several anti-tobacco programs, it was necessary to collect the data from the primary data source, the urban population (Bucharest), on the perception of smoking by the population, the determination of their dependence and the knowledge related to the effects of cigarette consumption. The target population of research was made up of all 14- to 60-year-olds coming from Bucharest because it was based on the premise that young people are interested in tobacco products from increasingly younger ages. The pilot sample consisted of 150 respondents, segmented by gender, age, occupational status, level of training. Therefore, the originality of this study is emphasized by the merging and correlation of elementary statistical methods with correlation and regression methods, which have the effect of simplifying the calculations and conclusions, knowing that it is very difficult to quantify the multitude of all causal factors acting on a phenomenon or economic process -social.

**Keywords:** urban population, pilot sample, level of smoking, questionnaire, correlation and regression methods.

**JEL classification:** M31

### **1. Introduction**

Smoking is a major factor in the appearance of many illnesses, influencing most of the organs in the human body; it also has significant effect on non-smoking persons, but who are exposed to the tobacco smoke.

Amongst the consequences of smoking are affections such as cardio-vascular diseases, respiratory diseases, various types of cancer and others. On women smoking also influences the reproductive system, which might lead to avortion or premature births. (Trofor, A., 2008). The causes that lead people to start smoking are various, such as: curiosity, wish to be integrated with groups and socializing, family example, the scent of impressing, stress and others. The tobacco is the unique product that can be sold and bought legally, even though it has significant negative effects on the human body of those who practice smoking. The most

popular product with contains tobacco is the cigarette. Smokers prefer to use cigarettes as they are easy to purchase being sold at every step. People can be classified in three major categories due to their relation to smoking (Trofor, A., 2008), as follows:

- Daily smoker- it is the individual used to smoke more than 1 cigarette per day for a period of 6 consecutive months;
- Occasion smoker- it is the person smoking only in special occasions, exceeding a period of 6 months with no tobacco;
- Non-smoker- it is the person who has never smoked during life or has smoked an insignificant number of cigarettes.

Among the factors that lead to the sensation of the need to smoke, the principal are the following: education from home, the stress level, attractive marketing of the cigarettes in television publicity, the need to integrate with groups. The main causes that lead people to start smoking are diverse (Tudorache V., Mihăicuță Ș., Tudorache R., 1999):

- The need to integrate and the desire to impress- in a world in which belonging to a certain group has a major impact on an individual's life, smoking becomes a way to adhere to a group and to socialize with others;
- Parenting influence- parents represent a behavioural and attitude model in front of children who most of times try to reproduce and wish to have the same activities as their parents. The actual example of the parents has a larger impact on the children comparing to the verbal education;
- Curiosity is specific to adolescent period, the age in which children experiment new activities. Adolescents tend to consider that smoking takes them into the adults' world, without being aware of the negative consequences that this action has on their health.
- Diminishing anxiety- many persons motivate smoking as a factor which help them move over stressful situations from the daily life.

#### **The effects of smoking on health**

All the products containing tobacco have consequences on smokers and even on non-smokers, no matter if the exposure was made on short term or long term.

- Smoking and its effects on the respiratory system. The effects of the tobacco consumption on the respiratory system are: obstructive chronic bronchopneumopathy, respiratory infections, chronic bronchitis and others.
- Smoking and its consequences on the cardiovascular system. Smoking is the most important factor in causing cardiovascular diseases. Chronic ischemic heart disease is caused by a decrease in blood flow leading to attacks of angina pectoris or acute myocardial infarction. The main factor for this condition is nicotine, a toxic substance that results from cigarette smoke. (Trofor, A., Radu-Loghin, L., 2005).
- Smoking and its consequences on the cerebral system. Smoking is the main reason for the occurrence of strokes that often lead to paralysis or even death.
- Smoking and its carcinogenic effects. Today, lung cancer is the leading cause of mortality among cancer patients. (Henk, H.H., 2013). Women are at a higher risk of developing lung cancer, and with increasing numbers of female smokers increased and the number of lung cancer patients. (Powell, H., 2014)

Bronchopulmonary cancer - its occurrence is primarily determined by the activity of smoking tobacco. The production of lung cancer is closely related to the number of cigarettes smoked daily, but also to the age at which smoking was started.

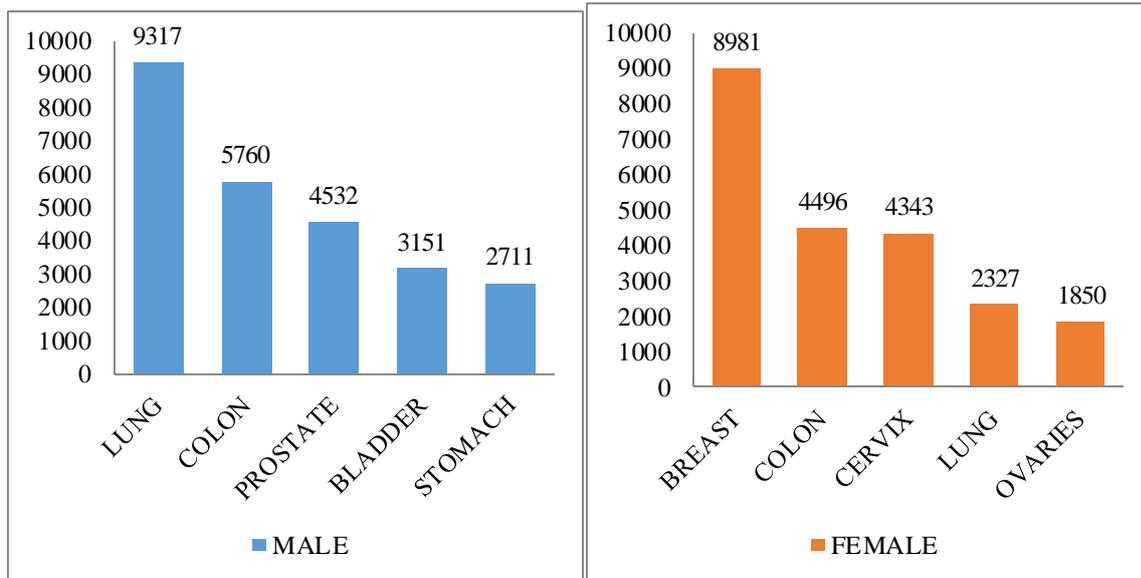


Figure 1- Incidence of cancer cases in Romania 2014

Source: World Health Organization- Cancer Country Profiles, 2014, available online at [http://www.who.int/cancer/country-profiles/rou\\_en.pdf?ua=1](http://www.who.int/cancer/country-profiles/rou_en.pdf?ua=1)

Laryngeal cancer - guilty of this type of cancer is smoking, which, combined with frequent use of alcohol, increases the risk of producing up to almost 100%. (See figure 2)

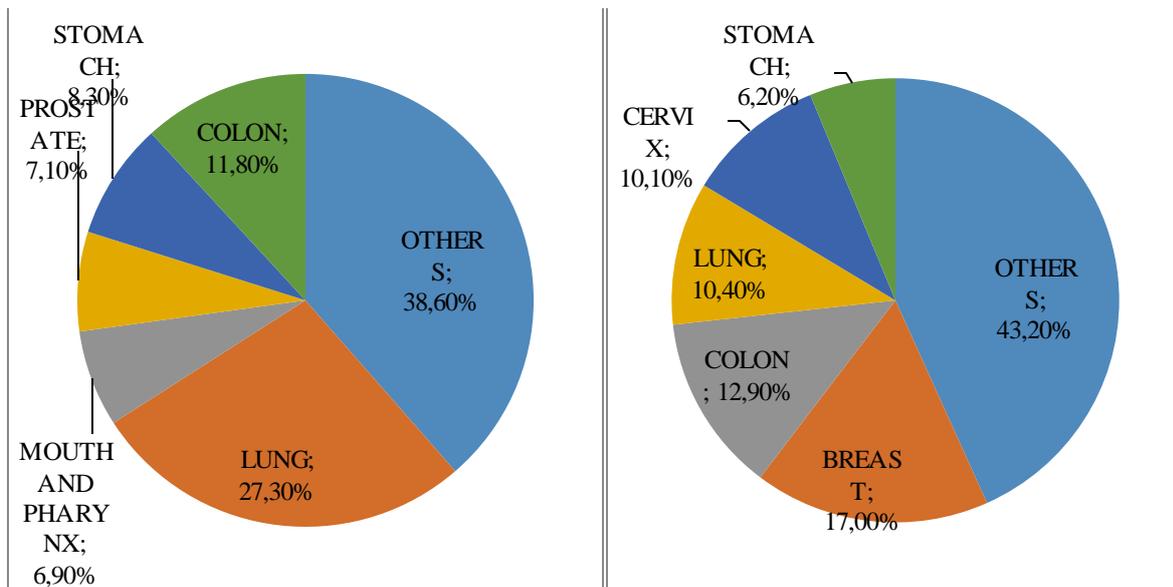


Figure 2- Profile of Mortality caused by cancer

Source: World Health Organization- Cancer Country Profiles, 2014, disponibil online la [http://www.who.int/cancer/country-profiles/rou\\_en.pdf?ua=1](http://www.who.int/cancer/country-profiles/rou_en.pdf?ua=1)

➤ Smoking and its effects on surgical interventions

It has been proved that smoking has negative consequences in wound healing. Cigarette smoke leads to diminishing the amount of oxygen in the body, good oxygenation of tissues being the main factor in wound healing. Smoking is the main enemy of smokers in terms of aesthetic appearance, contributing to the birth of early wrinkles and aging of the skin. Cigarette smoke leads to the excessive secretion of an enzyme that affects the elasticity and vitality of the skin.

➤ The effects of passive smoking

As a result of exposure to cigarette smoke, adults can accuse migraines, eye irritation that causes redness and tearing, irritation of the nose, dry mouth, coughing. Also people who suffer from allergic and respiratory conditions may experience increased symptoms. Lung cancer is one of the major effects of passive smokers. Thus, they are 30% more prone to the occurrence of this serious illness compared to those who are not exposed to tobacco smoke at all. (Tudorache V., Mihăicuță Ș., Tudorache R., 1999). Also, passive smoking reduces the ability of the blood to oxygenate the brain and heart and increases the activity of the platelets, causing the clotting of blood vessels, increases the risk of spontaneous abortions in women. (Radulesu, E., 2009). To prevent these complex effects of smoking on the population in 2016 Law No.15 was adopted on the Prevention and Control of Tobacco Products Consumption, law in accordance with the UEA Directive 40/2014, the main purpose of the law is to prohibit smoking in enclosed spaces workplaces and public spaces closed to protect the health of workers and the public in public spaces by avoiding exposure to toxic smoke from tobacco products. The law is additional beneficial for smokers because it facilitates smoking cessation as well as for minors and young people because it helps to prevent smoking by reducing the social occasions in which it smokes and in which tobacco consumption usually starts. Currently, 17 out of the 28 states of the European Union completely ban smoking in closed public spaces, in public transport and at work.

## **2. Research methodology**

In our paper, the following aspects were developed: in the first part was analyzed the smoking trend in Romania based on the secondary statistical data and in the second part of the paper was determined the level of addiction of people in the urban area in terms of smoking and the perception of this phenomenon based on primary statistics. The main statistical methods used in collecting the data series for the indicators that characterize and determine smoking are mainly exhaustive surveys. (Grosseck, G., 2006) The data collection was based on the statistical data published by the National Institute of Statistics in Romania as well as on the data published by the World Health Organization for the analysis of smoking trends in Romania. The analysis and modeling of the data regarding the characterization of smoking trends in Romania based on the secondary data was based on the study of the correlations that can be determined by applying the regression methods and the parametric correlation methods among the indicators that characterize the effects of smoking: number of cigarette packs, number of patients with respiratory diseases, age group and gender consumption patterns. These analyzes were carried out with the help of database management and analysis programs such as, Excel, EViews. (Andrei, T.; Stancu, S.; Iacob, A.I., et al, 2008).

The primary data analysis aimed at gaining a picture of smokers and their level of dependence, as well as their perception of the effects of smoking on health. The main objectives of the primary data analysis were: to identify the level of dependence of the population, to identify the level of awareness of the consequences of smoking on the body and to obtain a profile of the smoker in Romania. The target population of research was made up of people aged 14-60 from Bucharest. At the bottom of the research stood the survey, the tool used being the questionnaire. It consisted of 20 questions, the first part aimed at collecting personal data (gender, age, occupational status, level of training) and the second part had aspects related to the smoking customs and its consequences. The questionnaire was applied between 01.05.2017 and 15.06.2017 and the number of respondents was 150 persons.

### 3. Results regarding the smoking trend in Romania based on primary and secondary data

#### 3.1 Evolution and structural modification analysis of the indicators characterising smoking in Romania, based on secondary data

Regarding Romania and the evolution of smoking among Romanian citizens, we can say, as can be seen in Table 1, that Romanians' tendency to consume tobacco is decreasing. Thus, if in the year 2000, the average of the Romanians who smoked was 38.4%, meaning about 6,993,600 persons, in 2015 it decreased to 28.2% (about 5,157,700 persons). A positive aspect is that it is estimated that in the future, the number of tobacco consumers will decrease to 4,055,400 (22.9%) in 2025. In this regard, one can notice a major difference between the number of smokers in 2000 and 2025, namely 2,938,200 people. We notice a higher tendency for men to quit, from 52.1% of smokers in 2000 to 28.8% of smokers estimated in 2025 compared to women whose average falls by 8.1% from 2000 to in 2025.

Year	Percentage of tobacco consumption %			
	Male	Female	Male and Female	
	Estimated %	Estimated %	Estimated %	Estimated no. of smokers
2000	52.1	25.6	38.4	6.993.600
2005	45.9	23.7	34.4	6.433.400
2010	40.8	22.0	31.1	5.773.800
2015	36.3	20.6	28.2	5.157.700
2020	32.4	19.0	25.5	4.577.400
2025	28.8	17.5	22.9	4.055.400
Objective: reduction of 30% from 2010 to 2025	28.6	15.4	21.8	

*Table 1- Smokers situation in Romania during 2010-202*

Source: World Health Organization, WHO global report on trends in tobacco smoking 2000-2025, disponibil online la

[http://apps.who.int/iris/bitstream/10665/156262/1/9789241564922\\_eng.pdf?ua=1](http://apps.who.int/iris/bitstream/10665/156262/1/9789241564922_eng.pdf?ua=1)

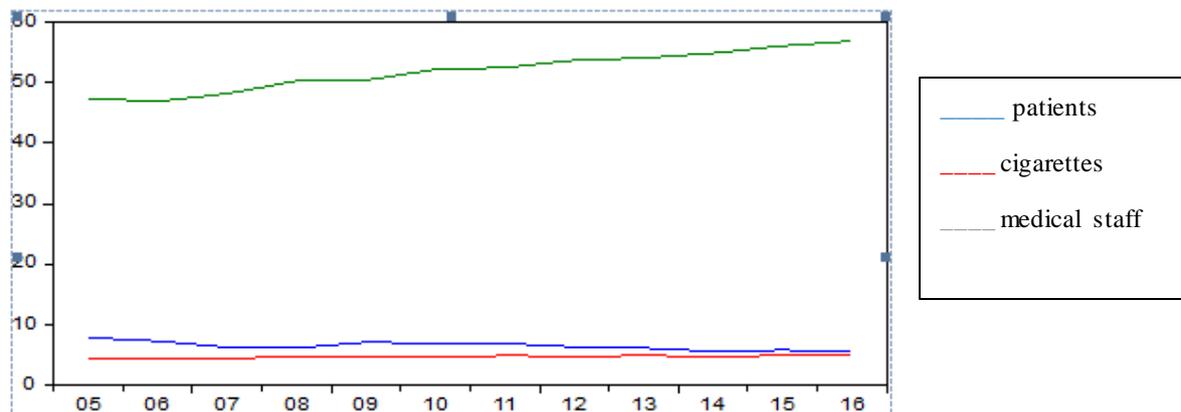
If we relate to the age of smokers in Romania, we notice that over time there has been a high proportion of them in the 25-39 age group. Although the tendency is to reduce the number of smokers, this age category is the one with the highest number of smokers, more precisely in 2000 the smoker's number aged between 25-39 was 47%, in 2010 38.5% , and in 2025 it is estimated to be 29.5%. On the opposite side are people over 70. The older Romanian citizens were those who during the past 25 years preferred not to consume tobacco, in 2025, their average being of 11.7%. Alarming is the fact that teenagers and young people have a high inclination to smoke. Thus, in 2000, the average age of 15-24 years old reached the threshold of 40.4%, 10 years later, the smoker's rate was decreasing, but the value remained high (33%). In 2025 it is estimated that the average of the 15-24 year old consumers will reach 29.5% (see Table 2). Smoking is among the most dangerous habits among adolescents. The main reasons that teach teenagers to start smoking are of a family, social and personal nature.

Age	2000			2010			2025		
	Male	Female	Total	Male	Female	Total	Male	Female	Total
15-24	52.2	28.0	40.4	41.0	24.6	33.0	29.4	20.4	25.0
25-39	58.7	35.1	47.0	46.1	30.5	38.5	33.3	25.6	29.5
40-54	56.9	29.6	43.0	44.5	25.6	35.0	31.9	21.5	26.7
55-69	43.3	16.0	28.5	34.7	14.6	23.9	24.7	12.1	18.0
70+	34.5	9.7	19.6	26.9	8.3	15.6	19.3	6.9	11.7

**Table 2- Situation of smokers in Romania based on age for 2000, 2010, 2025**

Source: World Health Organization, WHO global report on trends in tobacco smoking 2000-2025, disponibil online la [http://apps.who.int/iris/bitstream/10665/156262/1/9789241564922\\_eng.pdf?ua=1](http://apps.who.int/iris/bitstream/10665/156262/1/9789241564922_eng.pdf?ua=1)

Over time, several policies have been developed that have the role of combating and reducing the number of smokers in Romania. Thus we can list the World Health Organization that recommends that cigarette taxes be increased to 75%; prohibiting forms of direct or indirect advertising; increasing media campaigns at a high level; stronger enforcement of existing laws on smoking; imposing additional health warnings on tobacco products, etc. At the same time, as regards the evolution of the number of cigarette packs and medical personnel in 2005-2016 in Romania, it was upward. As a paradox, the evolution of the number of patients with respiratory diseases was decreasing, the minimal value of this indicator being 5, 61 million patients in 2016 (see Figure 3). The average number of the medical staff during the period 2005-2016 was 51521 persons / year and on average about 5 cigarettes / year was smoked during this period.



**Figure 3- Evolution of number of patients, medical staff and number of cigarettes packs**

Source: [www.insse.ro](http://www.insse.ro)

Perhaps one explanation is that it is mandatory for all areas where smoking is not allowed to have posters with the mention "Smoking prohibited!". Smoking is allowed in open air public spaces, in the waiting areas of the means of transport if they only have a roof and a single wall, or in the private dwelling if no economic activity is carried out there (it is not a job). (Law No 15/2016)

### 3.2 The analysis of the correlation between the indicators characterizing smoking in Romania based on the secondary data in the period 2005-2016

In order to verify the existence / absence of a relationship between the above-mentioned indicators in the paper, a multiple linear regression model was used. Multiple regression

analysis covered the following steps: development of the regression model, estimation of model parameters and verification of model validity. In the correlation graph, we can estimate that the points in the graph network (Figure 4) are distributed relatively uniformly, without any disparities between them, so we can conclude that the linkage between the factorial variables characterizing smoking in Romania (health-care physicians, physicians, number of smoked cigarette packs) and the number of patients with respiratory diseases as a resolutive variable is linear, direct.

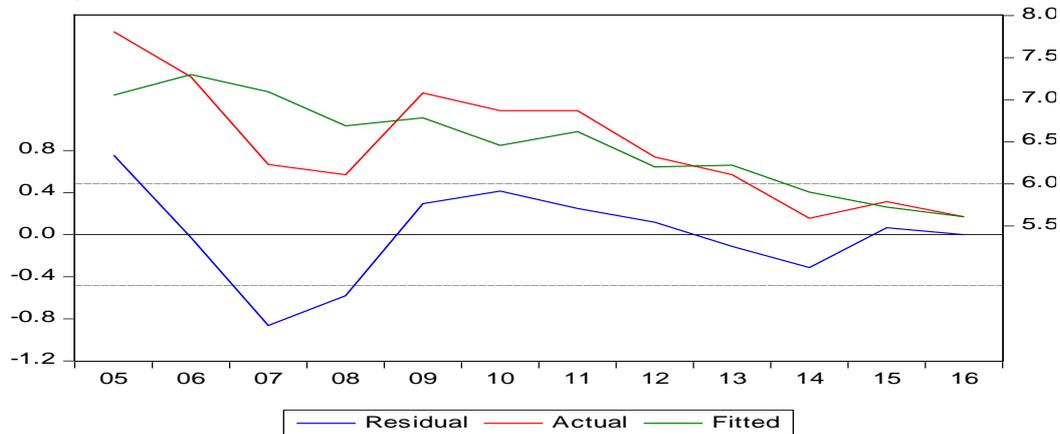


Figure 4- Actual, Fitted, Residual Graph

By applying the multiple regression model, using the program Eviews the following results, synthesized in Table 3, were obtained:

Dependent Variable: NUMBER_PATIENTS				
Method: Least Squares				
Date: 07/16/17 Time: 22:13				
Sample: 2005 2016				
Included observations: 12				
NUMBER_PATIENTS=C(1)+C(2)* NUMBER_CIGARETTES_PACK+C(3)* MEDICAL_STAFF				
	Coefficient	Std. Error	t-Statistic	Prob.
C(1)	11.4046	5.4014	2.1114	0.0439
C(2)	1.71295	2.4355	0.7033	0.0237
C(3)	-0.24935	0.132	-1.8816	0.0446
R-squared	0.6233	Mean dependent var		6.4716
Adjusted R-squared	0.5274	S.D. dependent var		0.7034
F-statistic	7.1379	Durbin-Watson stat		1.1688
Prob(F-statistic)	0.0139	Multiple R		0.7823

Table 3- The multiple correlation between the number of patients with respiratory diseases as the dependent variable and the evolution of the number of cigarette packs and the medical staff doctors as independent variables between 2005-2016 in Romania

The following results of multiple regression function using linear regression model of multifactorial were obtained:

$$\hat{Y} = 11.40 + 1.71x_1 - 0.24x_2$$

By applying the known statistical tests to verify the significance of model parameters, the validity of the model and the OLS assumptions, we find that the estimation results were statistically significant for a significance level of 5% for all the independent variables included in the model. The link between the variables included in the model was quantified by the multiple correlation ratio equal to 0.78. We appreciate that there is a linear, direct and quite significant dependence between the correlation variables. In the multiple regression model there was an average number of patients with respiratory diseases in Romania of 11.40 million persons if this indicator was influenced by other factors except the independent variables included in the model. The independent variables included in the linear multiple correlation model (number of cigarette packs and medical staff-doctors) explain 62% of the variation in the number of patients, the difference of 38% being the influence of other factors. Verification of the validity of the multifocal regression model based on the "Fisher" led to the conclusion that the linear multifactor regression model is valid and correctly identified statistically because the F-statistical probability = 0.013 < 0.05.

In conclusion, the number of patients with respiratory diseases is quantified by both quantitative factors and qualitative factors such as smoking frequency, life expectancy, infant mortality, as well as a number of personal, family, social factors. These can be highlighted on the basis of the primary data from the survey. At the same time, medical staff has a high responsibility for transmitting comprehensive information and advice to patients with respiratory, genital, cardiovascular, caused by tobacco consumption. Therefore, it is necessary for healthcare professionals to eliminate the unconsciousness and lack of knowledge of the young population especially regarding the smoking problem.

### 3.3 Horizontal analysis to determine perception of smoking and the degree of information on its consequences among urban population based on primary data

With regard to distribution of responses by age, the results obtained were: 8% of respondents are aged between 14-18 years, 32% of respondents are between 19-40 years, 31% are aged 41-60 years, and 29% are over 60 years old. ( see Figure 5). Also, over half of the respondents are male (see Figure 6)

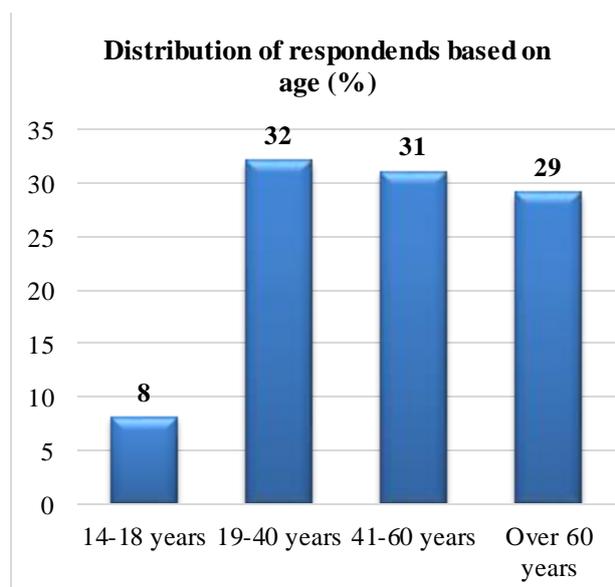


Figure 5- Distribution based on age

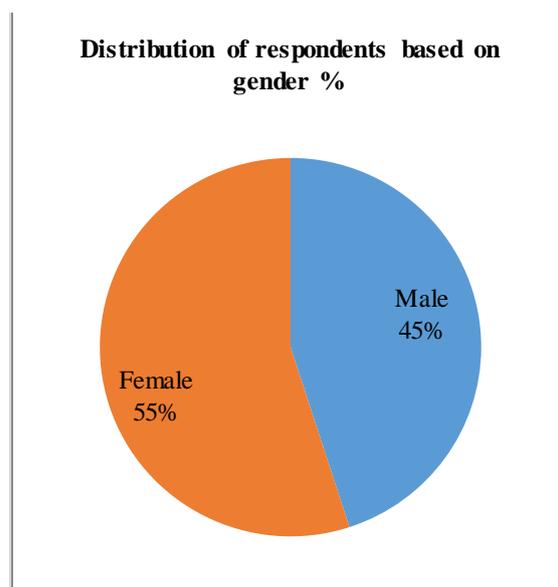


Figure 6- Distribution based on gender

Of the total number of respondents, most of them graduated: High School Studies (40%) and University (39%), the difference between the two levels being just one percent. At the opposite end there are people who have graduated postgraduate studies, their number being only 6

percentage points. Of the respondents, 16% stated that they had the last level of gymnasium education. In terms of smoking crunch, it is characteristic of all categories of people, regardless of the level of graduate education, as tobacco information is currently at every step, including those with secondary education, so that smokers consciously and deliberately choose to adopt such a habit (see figure 7) From the point of view of the occupational level, 15% of the respondents are students, 13% are employers / freelancers and 12% are unemployed / unemployed. A quarter of respondents (25%) are households / retirees, while 35% are employed (see figure 7)

To the question “When did you start smoking?” half of the respondents said they started smoking cigarettes as early as adolescence (50%), followed by young people (24%) from the age of 20. Only an insignificant percentage of 1% of surveyed respondents said they began to smoke when they were 30 years old. A percentage of 29% of the respondents said they never smoked. In conclusion, regardless of age, the tendency of people to smoke is during the first part of their life (adolescence and youth). This is worrying because long-term tobacco consumption has devastating effects on health, especially during adolescence when the body is in development.

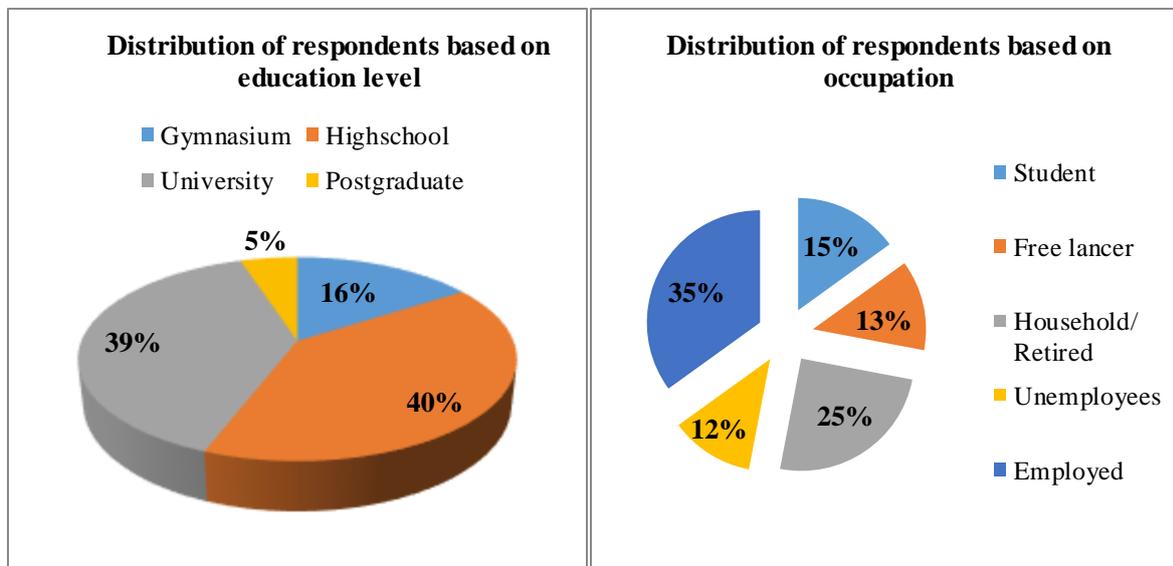
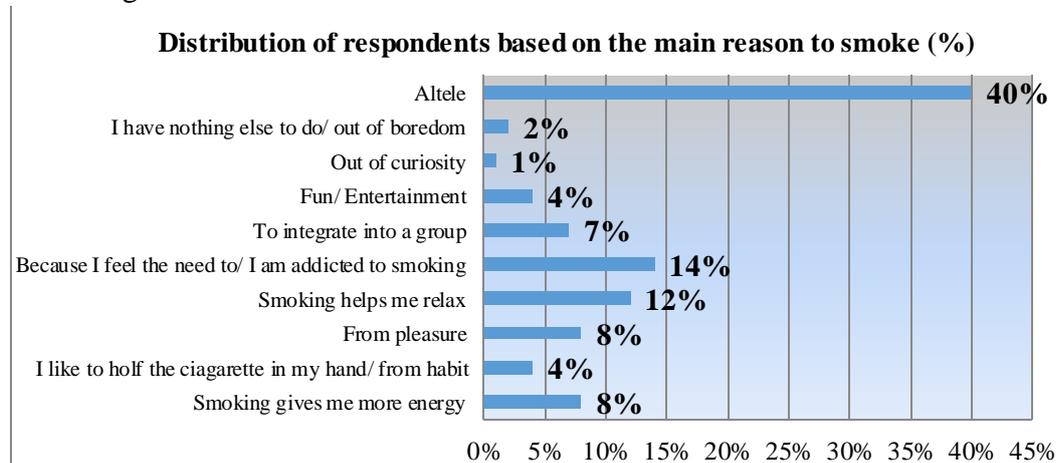


Figure 7- Distribution of respondents based on education and occupation

A significant percentage of 40% of respondents said that others were the (main) reasons they smoked (stress and problems prompted them to find a refuge in the tobacco). Of the respondents who motivated smoking as mentioned above, there are mainly those over the age of 30 and who started to smoke at maturity. Also (14% and 12% respectively) mentioned that they started to smoke to relax and because they are addicted to this. Another main reason why they smoke, 7% of the respondents, chooses to smoke in order to integrate into a group, so at the urge of friends. This is especially true for people who started to smoke in adolescence, the age at which people are very easily influenced. At the same time, 16% say that smoking gives them more energy (8%) and that it is an action that please them.(8%) (see Figure 8)

A quarter of smokers said that they are more likely to smoke less than one cigarette pack a week, which is an improvement in the current situation with regard to tobacco consumption. Thus, we can observe that the policies implemented by the Romanian Government for the fight against smoking have had positive results. A percentage of 23% of respondents said they consumed between one and three cigarette packets a week, while 18% said they smoked more than three packs of cigarettes in a week. It was found that those who consume a large number

of cigarettes predominate over the age of 45 and the opposite is the adolescents and young people. The category of respondents who said that was not the case was 34%. With regard to smoking cessation, it is worrying that most smokers have said they have never attempted to give up this vice, from which we can conclude that the level of addiction to cigarette smoke is high. This aspect is alarming because the effects of smoking on health are devastating and may be causing death.



**Figure 8- Distribution of respondents based on the main reason to smoke**

Asked „How long you have been able to refrain from smoking?” most of the respondents said that the period of non-tobacco consumption ranged between 1 and 6 months (17%) and the opposite less than one month 15%. Unfortunately, the number of people who have never interrupted smoking is 12%, most of them being male individuals who started smoking in adolescence. This demonstrates the impact of nicotine on the brain and the increased level of addiction it creates in the human body. If we analyze the answers of respondents who have failed to refrain from smoking for more than 6 months and over a year we get a rather insignificant percentage of 10%. For 46% of respondents these cases do not apply because they do not smoke or do so very rarely. Regarding the effects of smoking on health, 36% of respondents said they had information that the main consequence of smoking was the appearance of cancer in various forms (lung, laryngeal, or oral), followed in a 28% of those who report respiratory disease. These respiratory illnesses are caused by toxic substances in cigarette smoke and can cause illnesses that lead to frequent coughing, difficulty breathing, including the smallest activities that require effort (clothed, washed, walked). In an amount of 12%, respondents mentioned heart disease and heart disease such as cerebral accidents. Only 3% said they were aware of the effects of smoking on physical appearance and teeth, more precisely that it causes yellowing of the teeth. Concerned is the fact that 7% of the respondents admitted that they do not know any adverse effects of tobacco use, although today information is provided at every step through various means of communication (the Internet, the media, health and education institutions, and others). (see Figure 9)

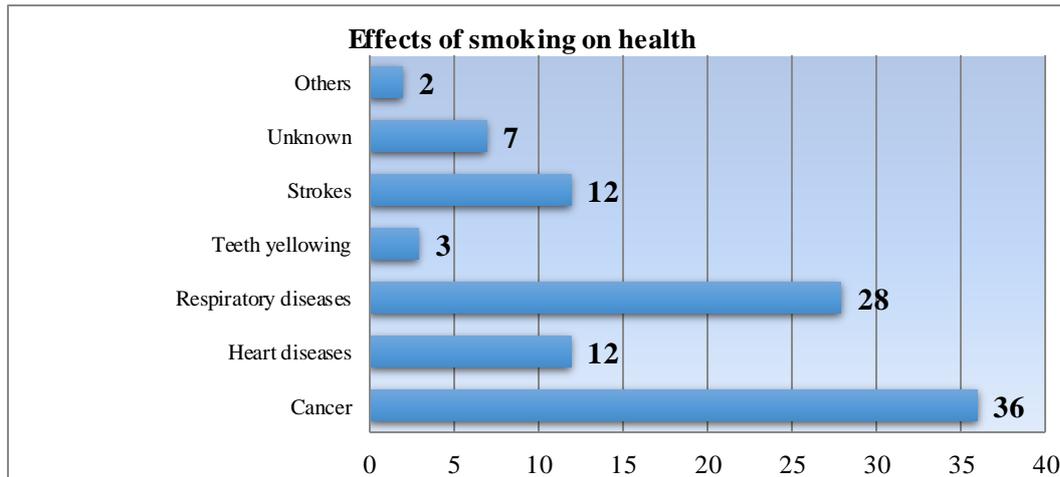


Figure 9- Distribution of respondents based on the effects of smoking on health of the population

Regarding the involvement of healthcare professionals in the awareness of people using tobacco, the following distribution of responses was obtained: 56% of those interviewed discussed with the healthcare staff about the negative effects of smoking, while 35% did not do so discussions, and 9% do not remember. If we consider tobacco dependence, 61% of respondents have never attempted to quit smoking in the last year, while 39% said they were trying to quit smoking. (See Figure 10)

To the question “ How long after smoking a cigarette do you feel the need to light a new one?” the following distribution of responses was obtained: 20% of them feel the need to ignite a new cigarette in less than one hour, 15% feel the need to smoke within 1-3 hours after the last cigarette, 15% the respondents feel the need to light a new cigarette the same day, 5% of the respondents feel the need to smoke as soon as they have extinguished the cigarette, 2% do not feel the need to light a new cigarette the next day and 3% did not know exactly how to describe the need to smoke. A significant 40% does not feel the need to smoke again.

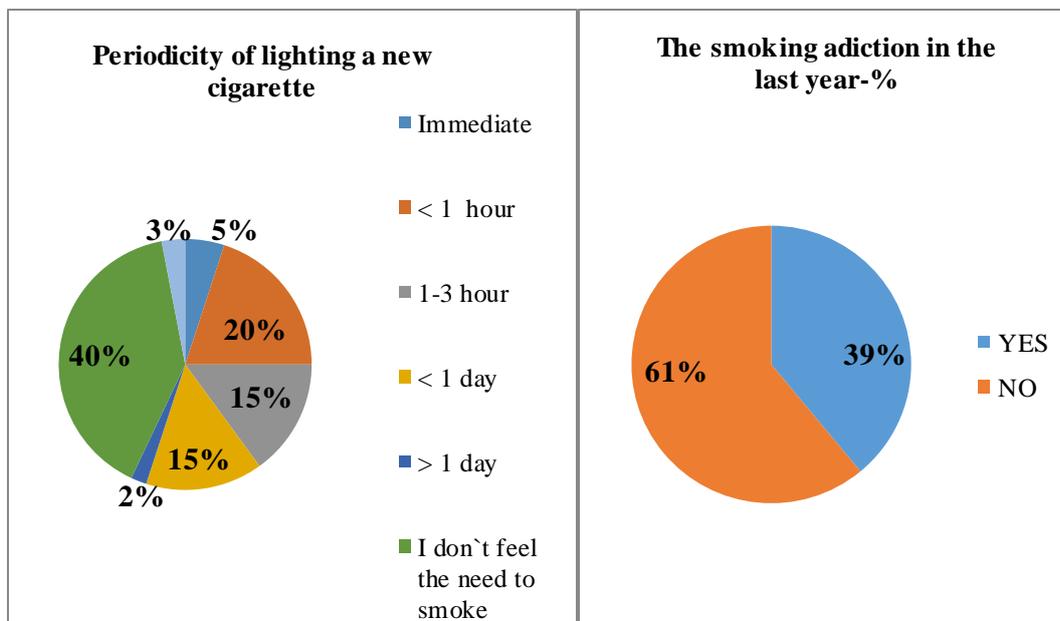


Figure 10- Distribution of respondents based on the periodicity of lighting a new cigarette and the addiction in the last year

This is a positive fact, which also results from the macroeconomic data provided by the National Statistical Institute, which shows that the number of patients with chronic diseases

due to the effects of smoking is decreasing. An aspect of real interest in this questionnaire is also related to the diseases the population suffers from and how they can or may not be influenced by external factors such as smoking. Thus, 44% of them complain of various diseases of the respiratory system, while 22% of the respondents have diseases of the cardiovascular system and 14% have ulcer / gastritis. Only 5% of respondents suffer from cancer and 4% of diabetes. Also, through this study, we also tried to determine the reason for smokers to ignite the next cigarette, resulting in the following distribution of responses: 14% feel the need to smoke due to addiction, 12% feel a lot more relaxed, 9% smoke and 8% have more energy. At the same time, 7% admit that they smoke to socially integrate. The other respondents (<10%) smoke either from amusement, curiosity, because of boredom. At the opposite end, 40% of respondents are non-smokers. This significant percentage of non-smokers is confirmed by the WHO Global Tobacco Report 2000-2025, which points out that in 2000 the average of Romanian smokers was 38.4 %, i.e. about 6,993,600 persons, in 2015 it decreased to 28.2% (about 5,157,700 persons). A positive aspect is that it is estimated that in the future, the number of tobacco consumers will fall to 4,055,400 (22.9%) in 2025 according to the same report.

In conclusion, following the horizontal analysis, the following portrait of the smoker in the capital has emerged, namely: most smokers in Bucharest are male and are part of all age groups starting with 18 years. Most of these have graduated from high school and university studies, which show that although they are educated and have information on the consequences of smoking, they still prefer to do this. The onset of smoking for most people occurs during adolescence or early part of the youth when they are easily influenced as a result of their entourage and family and social situation. At the same time, they want to impress others or are encouraged by the curiosity of trying new things. Finally, we can conclude that addiction to tobacco is stronger than the individual's willingness to abandon smoking, many motivating that anyway at some point they will die.

### **3.4 The Vertical analysis is to determine the perception of smoking and the degree of information on its consequences among urban population based on primary data**

This analysis aims to make statistical correlations between variables in order to detach some essential characteristics of the sample such as: association, correlation intensity, contingency. In order to verify the association between the respondents' genes and the attitude towards smoking in the last year, the test for a 99% chance of guaranteeing results was applied in the paper. After defining the null hypothesis specifying that there are no gender differences in the smoking behavior of the last year of the respondents was determined calculated. Its value was 8.69, a value that was compared to  $\chi^2_{table}$ . The  $\chi^2_{tabular}$  identification is done by two co-ordinates:  $n =$  the number of freedom degrees  $= (r - 1)(k - 1) = (2 - 1)(2 - 1) = 1$ ,  $\alpha = 1\%$ ,  $\chi^2_{0.99;1} = 6.63$ . In conclusion  $\chi^2_{calculated} > \chi^2_{table}$ , which brings us to a significant relation between the two variables. In this case, the null hypothesis is not allowed. To further see if the age of the respondents influenced the smoking frequency of the last month, the 99% probability test was applied to the test. After defining the null hypothesis stating that there are no differences in age with respect to the smoking frequency of the last month of respondents was determined calculated, whose value was 13.31. The  $\chi^2_{tabular}$  identification is done by two co-ordinates:  $n =$  the number of freedom degrees  $= (r - 1)(k - 1) = (4 - 1)(4 - 1) = 9$ ,  $\alpha = 1\%$ ,  $\chi^2_{0.99;9} = 27.9$ . In conclusion  $\chi^2_{calculated} < \chi^2_{table}$ , so the null hypothesis is allowed.

In order to measure the intensity of the association between age and smoking frequency, the contingency coefficient was determined in the paper, whose value of 0.4 suggests that the ratio between the two associated variables is positive but rather modest, so age is not quite a variable

significant in terms of the smoking frequency of respondents in the last month. Further measuring the intensity of the correlation between the time period when respondents began to consume tobacco and the determinants in starting tobacco consumption on the basis of scores (ranges) given to response variants, a correlation coefficient of the Spearman ranks of 0,6. The value of the Spearman correlation coefficient indicates that there is a direct and medium intensity relationship between the two qualitative variables.

#### 4. Conclusions and recommendations

The main objective of the paper was the need for people to become aware of the effects of tobacco consumption on public and especially individual health by determining the degree of addiction and trends in tobacco consumption on the one hand and the way it affects the good course of daily life on the other. Of particular importance is the information about the Romanians' inclination towards tobacco consumption. Thus, the average smokers in Romania in 2014 exceeded the European Union average, which is a worrying statistic for our country. However, it is estimated that in 2025 the number of Romanian smokers will decrease to about 4 million compared to 2010 when their number reached the threshold of nearly 6 million. Therefore, in order for the smoking cessation to be a success according to (Milica, C., Troia, D., 2013), the smoker has to set up several goals such as: observance of the first day when it is proposed to cease indifferent tobacco consumption (cigarette lighter, ashtray), replacing the coffee that is consumed alongside the cigarette, giving up smoking to the smoking areas, removing at least for a period the smoker group and joining a group of non-smokers.

A negative conclusion of this study is that almost 90% of new cases of cancer have causes associated with smoking, this being the most common form of cancer occurring both in the world and in Romania; the second negative conclusion is that this defect is encountered at an early age (adolescence and youth), being mainly due to curiosity, but also to environmental, family and social factors that cannot be quantified due to the very lifestyle the environment of origin, the complexity and the different living standards of the population. This is worrying because long-term tobacco consumption has devastating effects on health, especially during adolescence when the body is in development. On the opposite side, the study also sparked a positive outlook, namely an improvement in the current situation with regard to tobacco consumption (less than one packet of cigarettes per week). Thus, we can see that policies implemented to combat smoking have had positive results such as: the 2015 national tobacco-free campaign, the smoke-free law that has been permanently modified as recommended by the EU.

Among the proposals aimed at reducing the level of addiction and the perception of smoking among the urban population in Romania, there are a few things:

- Promoting programs to educate the population of all ages and from any social environment on the significant reduction of smoking in the future. In this respect, the introduction of a school material that teaches children about what smoking is, its impact on health would have beneficial consequences in developing a harmonious life from a personal and social point of view.
- More active involvement of medical staff through an active advertising campaign in the media and state and private sanitary units on the effects of smoking, existing new treatments, negative effects of pollution;
- Continue to improve patient protection legislation by December 31, 2017 and continue the parliamentary approach to adopt the health prevention law. Thus, the variables included in the multiple correlation model (sick number, medical staff and number of cigarettes) are found in a relationship of mutual interdependence, which also resulted from the analysis based on the primary data, at the level of the questionnaire.

Finally, we can safely say that most smokers are aware that cigarette smoke contains toxins that severely affect human health and cause diseases of the respiratory, cardiovascular or cerebral system, cancer, and has a major impact on physical appearance, but with all most of them continue to smoke declaring that they would be willing to give up the situation if they face any of the above conditions.

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