

## ORIGINAL ARTICLE

# DYNAMICS OF TOBACCO SMOKING PREVALENCE AMONG STUDENTS AND DIRECTIONS OF ITS PREVENTION

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## ABSTRACT

**The aim:** To study the dynamics of tobacco smoking prevalence among students and to find out the main directions of its prevention.

**Materials and methods:** The research involved 647 students (men and women) of the first – fourth instructional years of pedagogical specialties. The research was conducted during 2020-2022. The research methods included analysis and generalization of literary source on the research topic, documentary method, questionnaires, pedagogical observation and statistical methods.

**Results:** It was found that the phenomenon of tobacco smoking has long historical roots and is widespread in all countries of the world. It was found that 32.4 % of male students and 14.9 % of female ones smoke; herewith, 16.0 % of male and 8.3 % of female students smoke up to 10 cigarettes per day. It is established that a number of normative legal documents have been adopted and a system of preventive measures has been developed in order to counteract smoking among students.

**Conclusions:** Smoking is a significant health and social problem the solution of which requires significant human and financial resources. Despite some achievements in this area, the active involvement of not only men, but also women, mainly students, in smoking is of particular concern. The use of tobacco products provokes a threat to the health of students and the population as a whole, which requires additional efforts on the part of society, government agencies and non-governmental organizations to prevent this addiction.

**KEY WORDS:** students, prevention, smoking, health, vicious habit

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## INTRODUCTION

Students' attitude to a healthy lifestyle as the highest value is associated with understanding the uniqueness of their own life and the lives of others. Awareness of the value of life necessarily involves understanding its opposite – death. Depression, fear of death is one of the factors that causes the monotony, poverty of the individual's experiences, as well as his or her pursuit of illusory pleasures of life. Quite often, such illusory pleasures are vicious habits: smoking, alcohol consumption, drug addiction, substance abuse, gambling, Internet addiction, etc. Therefore, quite often such social phenomena as drug addiction, alcoholism, unwillingness to live with the lack of meaning in life and its devaluation, non-compliance with all other principles of a healthy lifestyle and health preservation in general are inherent

in a large number of students today. Tobacco smoking is one of the most common vicious habits among students [1-3].

According to the World Health Organization (WHO), smoking causes up to 8 million deaths annually, including almost 1.2 million among people who do not smoke but are exposed to secondhand smoke [4]. There are two types of smoking: active smoking is the direct process of actively smoking tobacco products by the smoker, while passive smoking involves the process of inhaling secondhand smoke (smoke emitted from a cigarette or exhaled directly by the smoker). In addition, the smoke that settles on the hair and clothes of people around during smoking is also harmful to health [5]. Tobacco smoking among students and its prevention is an urgent problem today and requires further research.

## THE AIM

The aim is to study the dynamics of tobacco smoking prevalence among students and to find out the main directions of its prevention.

Tasks: 1) to study the historical aspects of the emergence and spread of tobacco smoking; 2) to investigate the attitude of students to smoking and to find out the main directions of tobacco smoking prevention among students.

## MATERIALS AND METHODS

The work was performed at a higher education institution during the 2020-2022 academic years. 647 students (boys and girls) of the first, second, third, and fourth years of pedagogical specialties, who studied at a higher education institution, took part in the study.

Research methods: analysis and generalization of literary sources on the research topic, documentary method, questionnaires, pedagogical observation, statistical methods. Analysis and generalization of literary sources and documentary method were used to find out the current state of the researched problem, systematize and generalize information to achieve the aim and solve the tasks of the article (22 sources on the topic of the article from the scientometric databases Scopus, PubMed, Web of Science Core Collection, Index Copernicus, Google Scholar, J-Gate and others were investigated). The survey was conducted according to the authors' questionnaire, which was designed to study the attitude of students of different sexes and instructional years to smoking (it consist of 10 questions). The questionnaire was assessed by the experts in this field (3 professors and 5 associate professors) and was approved by the Academic Council of ZhSU (Protocol No. 17 dated 25.08.2020). The survey was anonymous. Pedagogical observation was used to assess students' adherence to healthy lifestyle norms, frequency of use of tobacco products, and their attitude to preventive measures to stop smoking. Statistical methods were used to check, systematize and summarize the received data. All calculations were performed in Microsoft Excel software.

The subject of our research, which is based on the generalization of statistical facts, is a regularity that does not require the detection of the reliability of the difference between students of different years of studying, but only indicates the dynamics of growth or decrease in the number of students who smoke in different years of studying.

This research followed the regulations of the World Medical Association Declaration of Helsinki. Informed consent was received from all students who took part in this research.

## RESULTS

The use of tobacco products in Europe has an ancient history, which contains records dating back 500 years since the discovery of America in 1492, where tobacco was found. The use of this plant became popular in Europe in the XVII-XVIII centuries [6]. Historical data on the use of tobacco products by the peoples of the world were found in Indian temples, which depicted the inhalation of aromatic smoke by priests. Smoking pipes were found in the tombs of the ancient Egyptian nobility. Scythians inhaled smoke from burning leaves. Identical descriptions were found in ancient Chinese chronicles. Mayan Indians were the first to chew and smoke tobacco leaves. Thanks to them, tobacco plants spread throughout the Americas [7]. The passion for tobacco was so powerful that this plant began to be assigned medicinal properties, considering it a panacea. However, in 1828, harmful substance i. e. nicotine was found in tobacco leaves. In small doses, it acts stimulatingly, which encourages people to smoke, but gradually nicotine accumulates in the smoker's body and poisons it [8].

In order to prevent the spread of tobacco products in the nineteenth century in Europe, attempts were made to restrict the import and smoking of tobacco, to impose taxes on trade in its products. Despite such restrictions, smoking actively gained momentum around the world. The number of smokers increased during the two world wars. Preventive mailings (brochures, booklets) about the dangers of smoking first appeared in 1950. At the same time, the first filter cigarettes and the first warning labels on cigarette packs about the dangers of smoking appeared in 1960. During this period, tobacco companies focused their attention on "new" consumers of their products – women. Women were attracted to smoking through cigarette advertising. The production of cigarettes directly for women was started. "Philip Morris" was the first of the tobacco companies, which in 1968 released thin cigarettes, which were created specifically for women. Advertisements for this brand of cigarettes showed independent and at the same time successful women who smoke. In the 1970s, the movement against women smoking as a risk factor for the development of a number of non-communicable diseases spread. Then trading companies, in order not to lose consumers, resorted to another marketing measure – they began to offer women "light" and "soft" cigarettes as a much "safer" option [9]. Recently, against the backdrop of a global decrease in demand for cigarettes and a decline in the prestige of smoking, the global tobacco industry has developed a fundamentally new way of consuming tobacco products i. e. new electronic gadgets, without smoke and ash. British

**Table I.** Attitude of students of different gender and different instructional year to smoking (in %, n = 647)

Attitude to smoking	Gender	Instructional year				In total
		1 <sup>st</sup>	2 <sup>nd</sup>	3 <sup>rd</sup>	4 <sup>th</sup>	
Do not smoke	male	63.8	57.9	54.3	55.9	59.6
	female	79.2	79.5	74.5	81.2	79.2
	total	70.6	74.1	66.3	74.0	72.1
Quit smoking	male	6.7	9.3	5.7	8.8	8.0
	female	4.9	5.8	11.8	3.5	5.9
	total	5.9	6.7	9.3	5.0	6.6
Smoke:	male	29.5	32.8	40.0	35.3	32.4
	female	15.9	14.7	13.7	15.3	14.9
	total	23.5	19.2	24.4	21.0	21.3
up to 10 cigarettes per day	male	12.3	20.3	20.0	20.6	16.0
	female	9.8	6.9	9.8	9.4	8.3
	total	11.2	10.1	13.9	12.6	11.1
up to 15 cigarettes per day	male	8.6	7.8	20.0	8.8	10.5
	female	4.9	7.3	3.9	4.7	5.9
	total	7.0	7.5	10.5	5.9	7.6
more than 20 cigarettes per day	male	8.6	4.7	–	5.9	5.9
	female	1.2	0.5	–	1.2	0.7
	total	5.3	1.6	–	2.5	2.6

**Table II.** Attitude of students of different gender and different instructional year to smoking depending on the place of their residence (in %, n = 647)

Attitude to smoking	Gender	Place of residence	
		village (n = 341)	town / city(n = 306)
Do not smoke	male	68.5	60.2
	female	84.9	74.7
	total	78.5	69.6
Quit smoking	male	9.2	10.2
	female	4.7	7.6
	total	6.5	8.5
Smoke:	male	22.3	29.6
	female	10.4	17.7
	total	15.0	21.9
up to 10 cigarettes per day	male	12.3	12.0
	female	6.6	8.6
	total	8.8	9.8
up to 15 cigarettes per day	male	7.7	10.2
	female	3.3	7.1
	total	5.0	8.2
more than 20 cigarettes per day	male	2.3	7.4
	female	0.5	2.0
	total	1.2	3.9

American Tobacco became one of the leading companies in the world that has developed and implemented these innovative technologies in the tobacco industry [10]. “New” smoking products are actively promoted through marketing and are represented on the market by electronic cigarettes and tobacco heating systems. E-cigarettes are electronic portable devices for heating liquid and generating vapor, which is inhaled by the smoker. The liquid can be with or without nicotine, but mostly it contains flavors and colors that make it pleasant to taste and “attract” users with its appearance. Tobacco heating systems are portable devices that use special sticks similar to cigarettes. Due to heating, an

aerosol is released, which is inhaled by the smoker. Unlike e-cigarettes, tobacco heating systems always contain tobacco. The promotion of the products’ “reduced risk” by the developers misleads consumers and endangers their health, as according to recent data, such tobacco products, like the previous ones, contain about 8 thousand different chemical compounds [11].

According to the scientists [12], in recent years there is a tendency to increase the intensity of daily smoking in Ukraine. According to their research, 24.2 % of adult Ukrainians (42.2 % of men and 9.4 % of women) smoke daily; 1.7 % of adults use tobacco heating systems. Women are joining the smoking habit at a rapid pace.

Every third female smoker is under the age of 20, which within Ukraine reflects the global trend of girls starting to smoke in adolescence. In 2005, the prevalence of smoking by women was 20 %, and today the number of female smokers has tripled. The high prevalence of smoking among women of reproductive age is of particular concern [13].

Due to mass marketing, the prevalence of e-cigarette smoking increased significantly in 2020 (compared to the previous year). This indicator increased from 5.8 % to 13.2 % among women. The number of female smokers of electronically heated tobacco products also increased from 3.4 % to 10.5 % in 2019-2020 [14].

Recently, the popularity of hookah smoking has been gaining momentum, due to the misconception that smoking it is not harmful to health compared to other tobacco products. The number of hookah supporters today is 9.2 % (among which the majority are women), and 49.2 % have tried to smoke hookah at least once. According to WHO, one hour of hookah smoking is equal to 100 cigarettes smoked [15].

Nowadays, 51 % of men of working age in urban and 60 % in rural areas smoke. As for women, this figure has increased from 5 to 20 % over the 20-year period. It is important that the age of 75 % of women who smoke is from 17 to 22 years [16]. Scientific evidence shows that tobacco dependence occurs faster in women than in men. The first signs of "nicotine dependence" are detected if a woman smokes one cigarette a day (5 cigarettes a week) [17].

Our research among students of ZhSU shows that 32.4 % of men and 14.9 % of women smoke. If 29.5 % of male students smoked during the first instructional year, then later this indicator increased significantly and amounted to 40.0 % during the third instructional year. Among women, the most abusive smokers are first-year female students (15.9 %) and fourth-year female students (15.3 %) (Table I).

It is important to note that 16.0 % of male and 8.3 % of female students smoke up to 10 cigarettes per day; 10.5 % of men and 5.9 % of women – up to 15 cigarettes per day; 5.9 % of men and 0.7 % of women – more than 20 cigarettes per day.

A characteristic feature is also that students who entered higher educational institutions from rural schools and lived in rural areas smoke less – 15.0 % (22.3 % – men and 10.4 % – women), 29.6 % of men and 17.7 % of women smoke among people from the city (Table II).

It is known that cigarette smoke is harmful not only for those who smoke, it is dangerous for everyone around. Cigarette smoke contains benzene, which is a source of ionizing radiation. Smoking causes lung cancer, it is associated with more than 80 % of cases of

chronic bronchitis and eczema of the lungs, more than 25 % – coronary heart disease, complicates the course of respiratory diseases, stomach ulcers. Smoking is especially dangerous for pregnant women.

In order to prevent smoking in the world, the WHO has developed four effective strategies (MPOWER), which were aimed to help countries in combating tobacco smoking among the population [1]: MONITORING – monitoring of tobacco consumption and preventive measures; PROTECTION – protection of people from exposure to tobacco smoke (smoke-free public places); OFFERING – assistance in the direction of cessation of tobacco use (today, comprehensive services for the treatment of tobacco dependence are available only for 5 % of the world's population); WARNING – warning about the dangers associated with tobacco use (such methods include graphic images on cigarette packs, which are mandatory today in only 42 countries); ENFORCING – strict control over compliance with legislative regulations on bans on advertising, promotion and sponsorship of tobacco products; RAISING – increasing taxes on tobacco products. Primary and secondary prevention of tobacco smoking is distinguished. Primary prevention involves the application of a set of measures aimed at preventing the use of tobacco products. Secondary prevention involves working with the population to inform about the harmful effects of nicotine as a psychologically active substance. Secondary prevention is aimed at those people who already smoke. Its main goal is early detection of tobacco dependence among the population and avoidance of mental and physical dependence on tobacco products.

It was found that social advertising about the harm of smoking in Ukraine is supported by 82 % of students surveyed. In addition to such advertising activities, anti-tobacco promotion during festivals, conferences, etc. is also effective.

Ukraine's health policy is implemented in the European policy under the slogan referred to as "Health for All", which is directly aimed at improving the quality of life of the population, including by overcoming such harmful habits as smoking. In combating tobacco smoking, the WHO uses a gender approach, focusing on the differences between all aspects of physiology, psychology and social roles of men and women. Tobacco control is one of the priority tasks in many countries of the world. The main principles of tobacco control are set out in the WHO Framework Convention on Tobacco Control (FCTC), which was adopted in 2003 with the support of 168 countries. Since 2005, this document has been binding on its signatory states [1].

In order to combat tobacco smoking in the period from 2005 to 2021, a number of regulatory documents (Laws of Ukraine) were adopted in Ukraine, which: pro-

vide for the gradual introduction of effective measures aimed at reducing the level of tobacco use among the population, including students, restricting access to them for children, public health, etc.; regulate the levels of tar and nicotine content in tobacco products, the mechanism of their retail price, confirmation of product conformity through certification; determine the prohibited places provided by law: premises and territories of health care facilities, educational institutions, public places, etc.; establish requirements for the prohibition of advertising and sponsorship of tobacco products. In 2017, the Verkhovna Rada of Ukraine adopted a seven-year “Excise Tax Increase Plan” for tobacco products, according to which the excise tax will increase by 20 % by 2025 (the average price of a pack of 20 cigarettes increased by almost 70 %). In addition, anti-tobacco legislation has been updated in Ukraine, namely the Comprehensive Anti-Tobacco Bill No. 4358 of November 10, 2020 “On Amendments to Certain Laws of Ukraine on the Protection of Public Health from the Harmful Effects of Tobacco”, namely the Law of Ukraine No. 1978-IX which was adopted by the Verkhovna Rada of Ukraine on December 16, 2021, which amended the laws that were adopted earlier. The innovations are aimed at preserving a smoke-free environment; reducing the attractiveness of tobacco products by prohibiting advertising, sponsorship and promotion of such products and the use of flavor additives; protection from exposure to secondhand smoke, emissions from e-cigarettes and aerosol tobacco products for heating in public places, prohibition of their sale to minors; increasing the size of the health warning (up to 65 % of the area) on the health hazards of smoking on tobacco packs.

Ukraine’s compliance with the WHO FCTC requirements will further contribute to the prevention and reduction of tobacco use. These requirements include:

1. Inclusion of questions on tobacco smoking in population surveys, which will help to supplement information on all forms of tobacco use, including new types of tobacco products.
2. Ensuring access to free or affordable services in terms of assistance provision in case of smoking quitting at both national and local levels.
3. Strengthening measures aimed at informing the population about the risks of tobacco products use by placing graphic and text warnings on cigarette packs about the negative impact on health, which occupy more than 50 % of the surface area of the pack, as well as their rotation (i.e. their regular change).
4. Increase the price of tobacco products and eliminate illegal trade in tobacco products.
5. Conducting information campaigns to raise public awareness about the dangers of tobacco use, aimed at changing risky behavior and creating professional assistance services for smokers.
6. Evaluating the effectiveness of bans and strengthening control over the implementation of current legislation.

These measures will contribute to the gradual reduction of smoking among the population of Ukraine, including among students.

## DISCUSSION

According to scientists, tobacco smoking is not only a global medical, social and economic problem of society, this vicious habit harms the health of the smoker and his or her environment, which often destroys social ties and breaks up families [18]. States spend up to 200 billion dollars annually on the treatment of non-communicable diseases dependent on tobacco smoking, in Ukraine – 2 billion. Quitting smoking and other forms of tobacco consumption is a significant problem for smokers, especially women, due to the addictive properties of nicotine. According to the scientists [8], dependence on nicotine is stronger even than on heroin.

According to the data of the scientists [19], Ukraine occupies the 17<sup>th</sup> place among the world’s countries in absolute terms of tobacco consumption. In the world there are approximately 870 cigarettes smoked by a person per year, while in Ukraine – 1500-1800 (about 4.5 cigarettes per day), which is almost twice as much as the global average.

Public health professionals play an important role in the prevention of this addiction. In this context, the Ministry of Health of Ukraine together with public organizations encourage the implementation of social advertising in Ukraine in the areas of public prevention and suppression of smoking [20]. Ukraine has joined the creation of anti-tobacco social videos with the participation of active and passive smokers who share their personal experiences about the terrible consequences of tobacco products [12]. The heroes of the social videos are smokers with many years of experience, including women. This project was supported by the World Lung Health Foundation in 2003 as part of the implementation of the WHO FCTC. Article 12 of the FCTC states the need to inform the public about the health hazards of tobacco and the effects of tobacco smoke [19].

It is established that the state policy of tobacco control in Ukraine is implemented in the context of: the WHO FCTC; the Association Agreement between Ukraine and the European Union on the control of non-communicable diseases (Article 427); the National Action Plan on

non-communicable diseases, which provides for information campaigns, monitoring of compliance with the requirements of the legislation, qualified assistance to the population in case of smoking cessation. The WHO FCTC emphasizes the importance of systematic monitoring of the situation in the field of tobacco control, which is crucial for understanding and overcoming the prevalence of tobacco smoking in Ukraine.

According to the scientists [21, 22], the increasing trend towards a healthy lifestyle, the demand for tobacco products may decrease as a result of systematic pressure on the global tobacco market by government organizations and society. This may be facilitated by the new taxation system, which provides for a systematic increase in indirect taxes on tobacco products, which will not only reduce demand for them, but also lead to a decrease in their production.

## CONCLUSIONS

It was found that tobacco smoking as a phenomenon formed for a long time is widespread in all countries of the world. Smoking is a significant medical and social problem the solution of which requires significant human and financial resources. Despite certain achieve-

ments on this way, the active involvement of not only men but also women, mainly of student age, in smoking is of particular concern. It was found that 32.4 % of male students and 14.9 % of female students smoke; 16.0 % of male students and 8.3 % of female students smoke up to 10 cigarettes per day. Students who live in rural areas smoke less – 15.0 % (22.3 % – men and 10.4 % – women), 29.6 % of men and 17.7 % of women smoke among people from the city. Therefore, counteracting smoking among students remains a priority for society. The use of tobacco products provokes a threat to the health of students and the population as a whole, which requires additional efforts on the part of society, government agencies and non-governmental organizations to prevent this addiction.

A system of preventive measures has been developed, including: surveys of the population on the consumption of tobacco products, prohibition of tobacco advertising, smoking in public places, warnings about the dangers of smoking on tobacco products, increasing taxes on tobacco products, promotion of a healthy lifestyle.

Prospects for further research are aimed at studying the motivation of Ukrainian students to use tobacco products.

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#### **Conflict of interest:**

*The Authors declare no conflict of interest.*

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