

# An attempt to assess knowledge about tobacco dependence among students at the Medical University in Wrocław

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## Abstract

**Introduction:** Tobacco smoking is still one of the greatest, avoidable, singular causes of death. Although students of medical faculties are expected to have solid knowledge about smoking hazards, a significant number of them still smoke.

**Aim:** The aim of the study was to assess knowledge on tobacco dependence in a sample of students at the Medical University in Wrocław.

**Material and methods:** Between 2009-2011, non-compulsory lectures on the diagnosis and treatment of tobacco dependence were provided for 3<sup>rd</sup> to 6<sup>th</sup> year students of medicine at the Medical University in Wrocław (170 students). The questionnaire contained 10 questions about smoking-related diseases and medicines used in tobacco dependence treatment.

**Results:** 21% of students smoked cigarettes and 79% were never smokers. 36% of the study group was exposed to passive smoking at the university. Nearly 80% of survey respondents agreed with the statement that cigarette smoking can lead to psychological addiction as strong as drug addiction, but more than 12% of the respondents perceived smoking just as a strong habit. Only 6 out of 10 surveyed students recognised tobacco dependence as an illness classified in an international classification of diseases and health problems (ICD-10). The correct amount of the chemical substances to be found in tobacco smoke was known by 67.1% of all surveyed students. The vast majority of the surveyed students indicated correctly 2 brands of nicotine replacement therapy, but none of them could name even one chemical and corresponding trade name of the pharmaceutical with central effect.

**Conclusions:** The level of knowledge about the diagnosis and treatment of tobacco dependence among the students of the Medical Faculty in Wrocław Medical University is low, and requires improvement through educational activities at both facultative and compulsory study level. Special attention should be paid to pharmaceutical treatment of the tobacco dependence syndrome.

## Key words

medical students, tobacco smoking, tobacco dependence treatment, knowledge on smoking cessation

## INTRODUCTION

According to the report of the World Health Organization published in 2011, tobacco smoking is still one of the greatest, avoidable, singular cause of death [1, 2]. Six million people worldwide die every year due to tobacco smoking. The prognosis is that in 2030 about 8 million people will die because of smoking, and 80% of these deaths will take place in low and middle income countries [1]. In Poland, 9.8 million people smoke cigarettes (30.3% of the total population aged 15 years and more). The percentage of smokers is higher among men (36.9%) than among women (24.4%) [3, 4, 5].

Although, students of medical faculties are expected to have solid knowledge about smoking hazards, a significant number of them still smoke. The proportion of smokers among medical students is lower than expected among the general population [6, 7, 8, 9, 10, 11], although in the mid-1980s both percentages were similar [12].

Cigarette smoke contains approximately 4,000 chemical substances, 40 of which have proven carcinogenic effects. Smoking influences all human systems and organs. Living in an environment free of tobacco smoke is one of the essential criteria for maintaining and improving good health in both individuals and the public [13, 14]. Tobacco smoking contributes to many diseases, including: 15 types of cancer and numerous diseases of the circulatory system, respiratory system and other organs as well as some diseases of mother and child (in the prenatal period and after giving birth) [15, 16].

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Tobacco smoking is the main cause of lung cancer. It also causes cancer of the oral cavity, throat and larynx as well as cancer of the urinary bladder, kidney, pancreas, stomach and cervix. Cardiovascular diseases related to smoking include: ischemic heart disease, arterial hypertension, arteriosclerosis, chronic cor pulmonale syndrome, degeneration of heart parenchyma, aneurysm of the aorta, and peripheral vascular disease (PVD) [14, 15, 16, 17, 18, 19, 20, 21]. Above all, cigarette smoke is the strongest factor which is advantageous for the emergence of 80% of chronic atrophic bronchitis that results in dysfunction of respiratory system (emphysema or complete respiratory system dysfunction) [22]. Tobacco smoking is connected also with low fertility, low body mass of newborns, and sudden infant death syndrome (SIDS) [14, 22, 23].

Tobacco dependence, for the first time, was recognised as a chronic and reappearing illness in the 10th Revision of International Classification of Diseases and Health Problems in 1994. It was classified as a behavioural and mental disorder related to tobacco smoking (F17) [24]. It has pharmacological (biological) and psychogenic forms. Tobacco dependence syndrome includes a range of symptoms of behavioural and physiological background, as well as changes in the cognitive processes which appear as a result of repeated use of tobacco. They are characterised by: strong need of tobacco use, difficulty in controlling this behaviour, persistent use of tobacco in spite of the harmful effects, placing tobacco above activities and obligations as well as biological conditions (such as sleep), increasing nicotine tolerance, and tobacco abstinence syndrome [15, 24, 25, 26].

Treatment of tobacco dependence is one of the tasks of the National Health Programme 2007-2015 in Poland. The aim is to promote a reduction in the smoking rate in the population and, as a consequence, the decrease in one of the most important risk factors of cardiovascular diseases, cancers, and illnesses of the respiratory system, as well as health hazards to infants [27, 28]. However, the efficient reduction of tobacco-related health outcomes requires the active participation of health professionals, their appropriate knowledge and attitudes.

The aim of the study was to assess knowledge about tobacco dependence in a sample of students at the Medical University in Wrocław.

## MATERIAL AND METHODS

Non-compulsory lectures on the diagnosis and treatment of tobacco dependence were provided for 3<sup>rd</sup> to 6<sup>th</sup> year students of medicine at Medical University in Wrocław between 2009 and 2011. Students enrolled themselves by applying to participate in the lectures via the university internet system (10-hour programme). At the beginning of the first meeting, the students were asked to fill in an anonymous survey. The questionnaire consisted of 10 questions: 5 on basic data (gender, age, year of study, smoking status, and exposure to passive smoking). The other 5 questions were used to assess knowledge about the harmful effects of tobacco smoking, smoking related diseases, and medicines used in tobacco dependence treatment. The questionnaire was prepared in collaboration with the Cancer Centre and Institute of Oncology in Warsaw, Poland. 170 students took part in the survey (109 women and 61 men). Characteristics of the study population is presented in Table 1.

**Table 1.** Characteristics of the study population

	All		Women		Men	
	N	%	N	%	N	%
Study group (N)	170	100	109	64.1	61	35.9
Year of study						
III	35	20.6	20	18.3	15	24.6
IV	67	39.4	39	35.8	28	45.9
V	16	9.4	10	9.2	6	9.8
VI	50	45.9	39	35.8	11	18.1
Lack of data	2	1.2	1	0.9	1	1.6
Smokers	35	20.6	17	15.6	18	29.5
Never smokers	134	78.8	92	84.4	42	68.9
Lack of data	1	0.6	0	0.0	1	1.6
Average age	23.3		23.5		22.9	
SD	1.48		1.45		1.50	

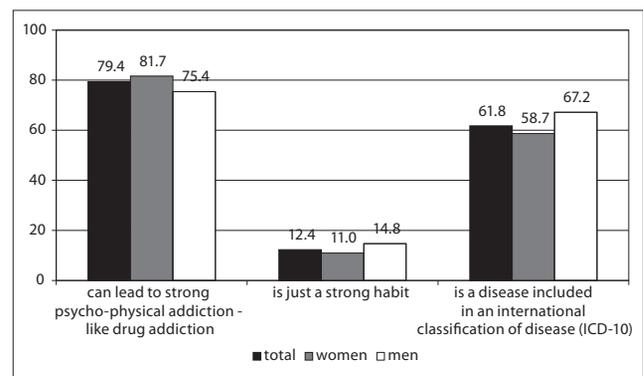
N – number of medical students  
SD – standard deviation

## RESULTS

Survey results showed that 36.0% of the students were exposed to passive smoking while at the university; male students were at higher exposure risk to passive smoking than female students – 45.9% and 31.2%, respectively ( $\chi=3.989$ ;  $p\leq 0.05$ ;  $|Q|=0.3$ ). Following that, home was the place of the second greatest exposure to passive inhalation of smoke – 14% of students were exposed at home (13.8% female and 14.8% male). The lowest exposure to passive smoking was observed at workplace; this concerned 6.4% of surveyed students, of whom 1.8% were female and 14.8% male ( $\chi=10.743$ ;  $p\leq 0.05$ ;  $|Q|=0.8$ ).

The first analysed aspect of students' knowledge about tobacco dependence was perceiving tobacco smoking as an addiction, habit or illness (Fig. 1). Nearly 80% of the survey respondents agreed with the statement that cigarette smoking can lead to psychological addiction as strong as drug addiction. This opinion was shared by 81.7% of female students and 75.4% male students. The non-smokers were more likely to share this opinion than smokers ( $\chi=12.761$ ;  $p\leq 0.05$ ;  $|Q|=0.6$ ).

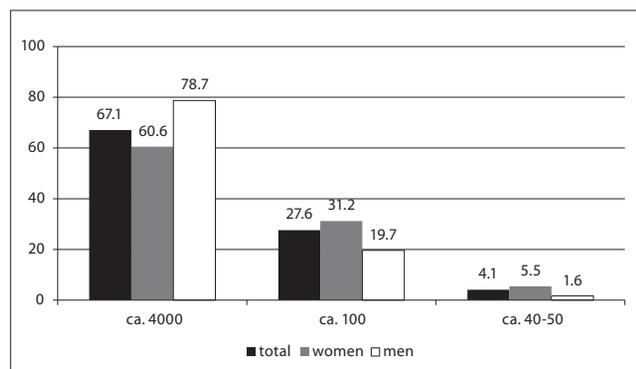
More than 12% of the respondents perceived smoking as just a strong habit. Smoking was perceived as a habit more often among male students than female students (14.8% and 11.0%, respectively). Only 6 out of 10 surveyed students recognised tobacco dependence as an illness classified in an international classification of diseases and health problems



**Figure 1.** Categorising tobacco dependence as addiction, habit or illness by all surveyed students, with respect to gender (%)

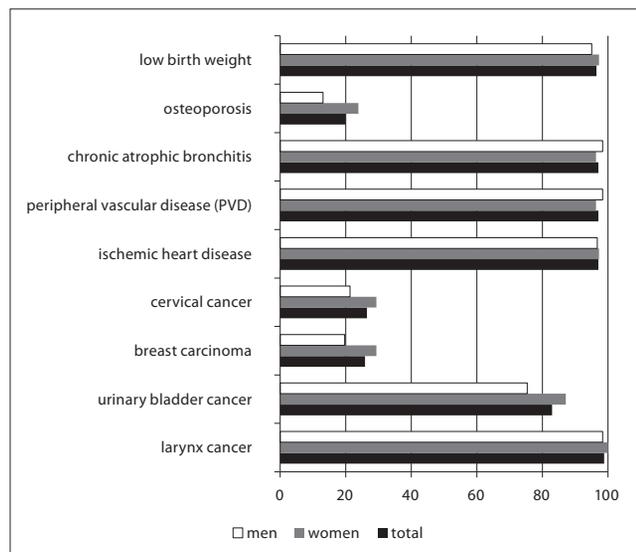
(ICD-10). Male students were more likely to classify tobacco dependence as an illness than female students (67.2% and 58.7% respectively).

The second examined aspect of the research was the students' knowledge about the content of chemical substances in tobacco smoke (Fig. 2). The correct amount of the chemical substances to be found in the tobacco smoke was known by 67.1% of all surveyed students; male students (78.7%) presented greater knowledge than female students (60.6%). The difference in respect to gender was statistically significant ( $\chi=5.825$ ;  $p\leq 0.05$ ;  $|Q|=0.4$ ), however, such a significant difference was not found between smokers and non-smokers ( $\chi=0.160$ ;  $p>0.05$ ).



**Figure 2.** Number of chemical substances in tobacco smoke in the opinions of all surveyed students, with respect to gender (%)

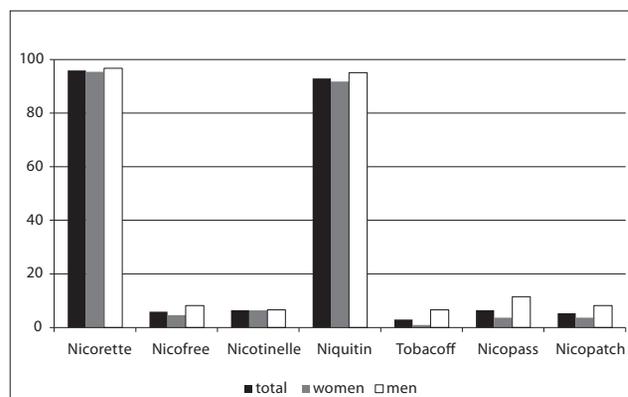
The next issue examined in the research was the students' knowledge related to the health risks of smoking (Fig. 3). Nearly all the surveyed students (98.8%) identified smoking as a cancer of the larynx risk factor as well as a risk factor of ischemic heart disease, peripheral vascular disease (PVD), chronic atrophic bronchitis (97.1%) and low birth weight (96.5%). Tobacco smoking as one of the risk factors of urinary bladder cancer was known to 82.9% of all surveyed students. Female students were more likely to know about this than male students and gender differences were statistically significant ( $\chi=3.814$ ;  $p\leq 0.05$ ;  $|Q|=0.4$ ). It was very rare among students



**Figure 3.** Risk factors assigned to tobacco smoking by all surveyed students, with respect to gender (%)

to assign tobacco smoking as a risk factor of osteoporosis; only 20.0% of all surveyed students presented knowledge on the relation between smoking and this medical condition. A higher level of knowledge about tobacco smoking as a risk factor of osteoporosis was presented by more female students (23.9%) than male students (13.1%) ( $\chi=6.871$ ;  $p\leq 0.05$ ;  $|Q|=0.5$ ).

The next aspect analysed was the students' knowledge about pharmaceuticals used as in nicotine replacement therapy (NRT) (Fig. 4). The great majority of the surveyed students indicated correctly only 2 from all presented brands of pharmaceuticals: Nicorette (95.9%) and Niquitin (92.9%).



**Figure 4.** Pharmaceuticals used in nicotine replacement therapy (NRT) according to surveyed students. Answers given by all students and within respect to gender (%)

The last aspect of the research was the ability of students to recognise and name the chemicals and trade pharmaceuticals with central effect (bupropion-Zyban, cytisine-Tabex, varenicline-Champix) used in the treatment of tobacco dependence syndrome. None of the respondents could name even one chemical and corresponding trade name of the pharmaceutical. Only 13.5% (23 students) of all those surveyed wrote an answer to this question, of whom 3.5% (6 students) did know the correct chemical name, and 9 students (5.3%) gave the correct trade name. The rest, 8 students (4.7%), gave incorrect trade and chemical names of pharmaceuticals used in nicotine replacement therapy.

## DISCUSSION

Tobacco dependence treatment should become an element of the routine medical procedure in all aspects of medical science. Therapeutic success is not possible without the correct diagnosis of tobacco dependence, without choosing the right medicine with effectiveness confirmed in a clinical research, and without the support of the patient to quit smoking [15, 22]. Treatment of tobacco dependence requires from the physicians an adequate knowledge and attitude to use it [10]. Such knowledge and attitude should be acquired during medical study.

Research published by the World Health Organization (Global Health Professionals Survey) [29] showed that the majority (81.1%-98.8%) of medical students from different countries are aware of the role played by doctors in the encouragement of patients to quit smoking. Also, the majority

of students (71.1%-97.1%) are in the position that knowledge about tobacco dependence syndrome should be acquired during medical study. On the other hand, formal training in this area was received by only 5.2%-32.6% of all questioned future physicians [29].

Also, the results published by Siemińska et al. presented the need to educate future Polish physicians in the scope of diagnosis and treatment of tobacco dependence. This need was pointed out by 92.6% of all questioned students; moreover, 53% said that their knowledge concerning diagnosis and treatment of tobacco dependence was poor, nearly 6% of students stated that they did not have any knowledge in this area [10]. The need for education in this area was also confirmed by the results of our study. 80% of students agreed that tobacco smoking can cause addiction just as strong as drugs; however, awareness that it is a medical condition classified in ICD-10 occurred among only 61.8% of all surveyed students. The great majority of questioned future physicians perceived tobacco smoking as one of the most important, eradicable risk factors of cardiovascular diseases, cancers, respiratory malfunctions, and infants diseases, but only 20% knew that tobacco smoking is a risk factor of osteoporosis. A comparative level of knowledge was presented by the students of the pharmaceutical faculty of Collegium Medicum at the Jagiellonian University in Krakow [30].

Total lack of knowledge among our research group was found in the area of medicines used for treatment of tobacco dependence – nicotine replacement therapy (NRT) and those with a central neurological effect. None of the questioned students could give the correct trade or chemical name of the pharmaceutical with a central effect, and most of them knew only 2 out of 4 brands of NRT available on the Polish market. Moreover, 24.1% of all surveyed students mistook pharmaceuticals acting on the central nervous system with pharmaceuticals used in NRT. Together with professional knowledge about an effective treatment for tobacco dependence, the personal attitude of physicians is also of great importance as a physician who smokes is less likely to successfully guide patients through tobacco dependence therapy [14, 22, 31]. Despite that, the majority of medical students are concerned about threats related to smoking tobacco [8, 10, 11, 30, 32]. The prevalence of smoking among medical students in Poland is significant and varies between 19.9-30% [10, 11, 29, 32]. Among all students surveyed in our study, 20.6% currently smoked. Although this percentage is today much smaller than in the past (52% of current smokers among medical students were observed in the first nationwide survey conducted in Poland in 1987 [12]), it still remains at a moderately high level when compared with recent data from other countries. Resulting from the most recent review of international studies on smoking among medical students, smoking rates among male medical students (which are usually higher than among female students) ranged in 2007 between 3% in the United States and 58% in Japan [26]. Percentages of current cigarette smoking among medical students from European countries taking part in the Global Health Professionals Survey varied from 43.3% in Albania, through 36.6% in Croatia, to 18.1% in Serbia [29].

## CONCLUSIONS

The level of knowledge concerning diagnosis and treatment of the tobacco addiction syndrome among students of Medical University in Wrocław is low and requires improvement through educational activities at both the facultative and compulsory study level.

Special attention should be paid to the pharmaceutical treatment of the tobacco dependence syndrome.

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