

## Clinical Structure and Comorbidity of Addictive Behavior and Dependencies in Medical Students

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### Abstract

A high level of academic load and stress create the risk of addictive behavior and addictions in medical students as a way of stress overcoming. The purpose of our study was to verify the prevalence of addictive behavior and dependencies in medical students and their comorbidity with mental disorders for the development of approaches to their prevention. In this regard, we examined 455 senior students of the Medical Institute using the medical-sociological, psychometric methods and the "Method of clinical screening-diagnostics of addictive and dependent behavior". It was found that the addictive behavior and formed dependence were revealed in 37.1% of students. At the same time, various kinds of addictive behavior and dependencies were combined among themselves in 37.5% of cases. Persons with addictive behavior and dependence were characterized by personal immaturity, low level of responsibility, tolerance and negative thinking. The study revealed a high level of comorbidity of addictive behavior and addictions to mental disorders, among which neurotic, stress-related and somatoform disorders (58.5%), as well as personality disorders (14.2%), prevailed. Persons with addictive behavior and addictions had a higher incidence of asthenia, anxiety and depression, as well as obsessive-compulsive symptoms, social phobia and dysmorphophobia, which created additional difficulties in social adaptation. Thus, prevention of addictive behavior and addictions should, first of all, be aimed at the timely detection and therapy of mental disorders, as well as includes measures to reduce the level of educational stress.

**Keywords:** Addictive Behavior, Dependence, Medical Students, Risk Factors, Stress, Anxiety, Depression.

### Introduction

The activity of a medical student is one of the emotional types of labor, which affects the level of their mental and physical health [1]. The prevalence of chronic stress among medical students is higher than among the general population and ranges from 38% to 62% [2, 3, 4]. Stress is caused by a large amount of training load, uncertainty about one's own professional qualities and a significant amount of effort required for doing homework, fear of the future [5, 6]. The pressure from the part of teachers, the increased workload before the exams [1, 7], the

need to work with cadaver material and the strict schedule of the day, as well as the lack of time planning skills and self-discipline are stressful [3, 8]. The highest prevalence of stress is observed among the first-year students, which is due to the need to adapt to new conditions in life away from family [9-12].

Tobacco smoking was one of the ways to combat stress [13]. According to [12], there is a direct relationship between the stress and the use of psychoactive substances. According to [14], 36.7% of freshmen students struggled with stress symptoms through taking herbal medicines, 1.8% took tranquilizers and 3% - antidepressants. A significant number - 34.3% used alcohol, and 82.5% communicated in social networks for a long time to eliminate anxiety and internal tension. Using these methods to combat stress is a risk factor for the formation of addictive behavior and dependencies.

By addictive behavior, we understood the unsystematic use of psychoactive substances or addiction to certain subjects or actions before the formation of the 1st stage of addiction. Thus, the addictive behavior is a stage on the way of dependence formation - the actual painful predilection with the characteristic clinical picture.

### Aim

The aim of our study was to verify the prevalence of addictive behavior and addictions and their combination with mental disorders among medical students to develop recommendations for their prevention.

### Materials and Methods

Using the method of continuous sampling, we examined 455 senior students of the Medical Institute: 333 (73%) female and 122 (27%) male, at the age from 20 to 26 ( $22.0 \pm 1.1$ ) years old. All the persons tested gave voluntary informed consent to the testing procedure and the clinical and psychopathological examination.

The main research methods were as follows:

1. **Medico-sociological** - questionnaire survey (socio-demographic information, features of social adaptation).
2. **Psychometric:** the technique of "Clinical screening of addictive and addictive behavior" [15]; the hospital anxiety and depression scale (HADS) [16]; the "Method of personal maturity diagnosing" [17];

3. **Clinical-psychopathological** (collection of subjective anamnesis, analysis of complaints, clinical interview, observation);
4. **Statistical:** descriptive statistics, the Mann-Whitney test for two independent groups, the criterion  $\chi^2$  with the Yates correction for conjugation tables 2x2, the odds ratio (OR) using a package of applied statistical programs STATISTICA 6.0.

The comparative analysis was carried out in two groups. The first group included students with addictive behavior and dependence - 169 (37.1%) people: 36.1% of boys and 63.9% of girls. The second control group included 286 students: 21.3% of

boys and 78.7% of girls without addictive behavior and addictions.

### Results and Discussion

As a result of the study, it was found that the addictive behavior and dependencies were detected in 50% of boys and 32.4% of girls among all the students surveyed ( $\chi^2=11.1$   $p<0.002$ ); OR=2.1; 95% CI=1.3-3.3. The odds ratio indicates that the male sex is a risk factor for the development of addictive behavior and addictions more than 2 times more likely than the female sex.

The prevalence of addictive behavior and dependencies was as follows (Table 1).

**Table 1: The Prevalence of Addictive Behavior and Dependencies among Medical Students**

#	Kind of Addiction/Dependence	All people (455)		Men (122)		Women (333)	
		n	%	n	%	n	%
1	Alcohol addiction	51	11.2	18	14.8	33	9.9
2	Love addiction	48	10.5	12	9.8	36	10.8
3	Internet addiction	44	9.7	12	9.8	32	9.6
4	Social networks addiction	39	8.6	12	9.8	27	8.1
5	Food addiction	30	6.6	7	5.7	23	6.9
6	Mobile phone communication addiction	27	5.9	5	4.1	22	6.6
7	Addiction to shopping	25	5.5	3	2.5	22	6.6
8	Tobacco addiction	24	5.3	14	11.5	10	3.0
9	Computer games addiction	18	4.0	11	9.0	7	2.1
10	Tobacco dependence	17	3.7	9	7.4	8	2.4
11	Internet serials addiction	15	3.3	4	3.3	11	3.3
12	Electronic devices addiction	13	2.9	5	4.1	8	2.4
13	Sex addiction	12	2.6	8	6.6	3	0.9
14	Alcohol dependence	8	1.8	4	6.6	4	1.2
15	Cybersex addiction	5	1.1	4	3.3	1	0.3
16	Cybersex dependence	5	1.1	4	2.5	2	0.6
17	Love dependence	5	1.1	-	-	5	1.5
18	Social networks dependence	4	0.9	1	0.8	3	0.9
19	Internet dependence	3	0.7	1	0.8	2	0.6
20	Sex dependence	1	0.2	1	0.8	-	-

Table 1 showed that some kinds of addictions and dependencies prevailed among males, in comparison with the female sex:

- Tobacco addiction:  $\chi^2=11.2$   $p<0.002$ ; OR=4.2; 95% CI=1.7-10.5;

- Tobacco dependence:  $\chi^2=4.8$   $p<0.03$ ; OR=3.2; 95% CI=1.1-9.4;

- Computer games addiction:  $\chi^2=9.5$   $p<0.003$ ; OR=4.6; 95% CI=1.6-13.5;

- Cybersex addiction and dependence:  $\chi^2=7.6$   $p=0.007$ ; OR=6.7; 95% CI=1.5-33.2;

- Sex addiction:  $\chi^2=9.8$   $p<0.003$ ; OR=7.7; 95% CI=1.8-37.4.

Thus, it was established that male gender was a risk factor for the development of nicotine addiction and dependence, sexual and cybersex addictions and computer games addiction.

At the same time, we established that various kinds of addictive behavior and dependencies were combined among themselves in 37.5% of cases. 36.2% among males and 38% - females.

Analysis of the socio-demographic characteristics of students showed that the father was the family head less often among the students of the first group (42.6%) in comparison with the second group - 53.1% ( $\chi^2=4.3$   $p<0.04$ ). The students of the first group (44.4%) were less likely to be frank with their father than the students of the second group - 59.8% ( $\chi^2=9.5$   $p<0.003$ ). Also, the father was less trusted than the mother in the first group: 44.4% and 77.5% respectively ( $\chi^2=37.6$   $p<0.0005$ ).

Thus, the students of the first group were more often deprived of the father's attention and grew up under the mother's influence.

We also investigated the attitude of students towards learning and the future profession of a doctor

(Table 2).

**Table 2: The Attitude towards the Study and Future Profession of the Students of the First and Second Groups**

#	Symptom/syndrome	1 <sup>st</sup> group		2 <sup>nd</sup> group		$\chi^2=$	p<
		n	%	n	%		
1	To fail the exam	76	59.4	73	42.2	8	0.006
2	To get unsatisfactory marks	64	50.0	66	38.2	3.7	0.05
3	To be late for classes	27	21.1	18	10.4	5.8	0.02
4	Do not to do homework	74	57.8	51	29.5	23.2	0.0005
5	Displeas from parents	64	50.0	37	21.4	25.7	0.0005
6	Quantity of attention is paid to learning	48	37.5	95	54.9	8.3	0.005
7	Disappointment in the chosen profession	40	31.3	29	16.8	7.9	0.006

Table 2 shows that the students of the first group were less diligent about their studies and were more often disappointed with the choice of medical profession.

The results of the "Method for diagnosing personal maturity" are presented in Table 3.

**Table 3: The Level of Personal Maturity of the Students of the First and Second Groups**

Feature	1 <sup>st</sup> group		2 <sup>nd</sup> group		p<		
	Me	Q25	Me	Q25			
Responsibility	22.0	20.0	24.0	22.0	21.0	25.0	0.002
Tolerance	16.5	14.0	20.0	18.0	16.0	20.0	0.00001
Self-development	18.0	16.0	21.0	19.0	16.0	21.0	0.02
Positive thinking	17.0	15.0	20.0	19.0	17.0	21.0	0.00006
Independence	19.0	17.0	22.0	20.0	18.0	23.0	0.06
Psychopathisation / neurologization	10.0	8.0	14.0	7.0	5.0	9.0	0.000000
Personal maturity	74.0	68.0	79.5	80.0	72.0	94.0	0.000003

Table 3 shows that the students of the first group were characterized by a lower level of responsibility, tolerance, self-development, less positive thinking, more frequent phenomena of psychopathy and neuroticism, and a lower level of personal maturity. According to the results of the hospital anxiety and depression scale (HADS), it was found that the clinically expressed anxiety was more often detect-

ed in the first group (26.6%) than in the second group - 6.6% ( $\chi^2=33.4$  p<0.0005). Depression also occurred more often in the first group ( $\chi^2=29.3$  p<0.0005) than in the second one: 21.3% and 4.5% respectively.

The results of a clinical-psychopathological study are presented in Table 4.

**Table 4: The Results of Clinical and Psychopathological Study of Students of the First and Second Groups**

#	Feature	1 <sup>st</sup> group		2 <sup>nd</sup> group		$\chi^2=$	p<
		n	%	n	%		
1	Asthenia	38	22.5	25	8.7	15.7	0.0006
2	Vegetative disorders	83	49.1	93	32.5	11.6	0.001
3	Sleep disorders	90	53.2	78	27.3	29.7	0.0005
4	Obsessive syndrome	29	17.2	18	6.3	12.4	0.001
5	Specific phobias	52	30.8	48	16.8	11.3	0.002
6	Agoraphobia	16	9.5	2	0.7	19.2	0.0005
7	Claustrophobia	22	13.0	10	3.5	13.3	0.0009
8	Dysmorphophobia	32	18.9	21	4.6	12.8	0.001
9	Derealization and depersonalization	51	30.2	40	14.0	16.4	0.0006
10	Conversion disorder	47	27.8	37	12.9	14.6	0.0007
11	Panic attacks	36	21.3	30	10.5	9.2	0.003
12	Paranoia	39	23.1	28	9.8	13.9	0.0008
13	Suicidal behavior	40	23.7	20	7.0	24.4	0.0005

All the students surveyed were asked to assess the state of their mental activity according to the following parameters: the presence of any disorders of mental activity, the impact of mental features on social adaptation and the appropriateness of seeking specialized care. It was found that the majority of students of the first group (55.6%) noted the presence of problems in their mental state, which was more frequent than among the students of the second group ( $\chi^2=13$   $p<0,001$ ). Most students of the

first group, in contrast to the control group, noted the presence of obstacles to successful social adaptation ( $\chi^2=31.9$   $p<0.001$ ). Also, the students of the first group often felt the need for specialized psychological or medical care ( $\chi^2=12.6$   $p<0.001$ ) and more often applied to it ( $\chi^2=4.8$   $p<0.03$ ).

The mental state of the students of the first group was qualified as follows (Table 5).

**Table 5: The Mental State of the Students of the First Group**

#	Disorders	ICD-10 codes	All people		Men		Women	
			n	%	n	%	n	%
1	Organic, including symptomatic, mental disorders	F0	15	8.9	9	14.8	6	5.6
2	Schizophrenia, schizotypal and delusional disorders	F2	1	0.6	-	-	1	0.9
3	Mood [affective] disorders	F3	14	8.3	3	4.9	11	10.2
4	Neurotic, stress-related and somatoform disorders	F4	99	58.5	30	49.1	69	63.9
5	Disorders of adult personality and behaviour	F6	24	14.2	7	11.5	17	15.7
6	Premorbid states	-	16	9.5	12	19.7	4	3.7
<b>Total</b>			<b>169</b>	<b>100</b>	<b>61</b>	<b>100</b>	<b>108</b>	<b>100</b>

Table 5 shows that the neurotic, stress-related and somatoform disorders predominated among the students of the first group (58.5%). At the same time, the diagnosis of obsessive-compulsive disorder (16.2%) was established in the presence of symptoms in both the psyche and rituals. The somatoform autonomic dysfunction (16.2%) was characterized by mixed symptoms, indicating the involvement of two or more body systems in the pathological process. The diagnosis of panic disorder (3%) was exhibited only in the presence of unfolded sympathetic adrenal crises in the clinical picture.

Disorders of mature personality and behavior in adulthood, established in 14.2% of cases, were characterized by polymorphism of symptoms with a variety of affective and phobic disorders, mood fluctuations of the phase character with subjective deterioration in the morning and spring-autumn periods.

We saw the task of medical and psychological help, first of all, in the normalization of the mental state of dependent students, and then in the formation of a neutral attitude to the object of dependence and reorienting them to constructive activity. In addition, the important sections are the activation of the desire for self-development, the reduction of the level of social frustration and the elimination of autoaggressive tendencies.

### Conclusion

The study showed that addictive behavior and dependencies in medical students were revealed in

37.1% of cases. At the same time, various kinds of addictive behavior and dependencies were combined among themselves in 37.5% of cases: 36.2% among males and 38% - females.

The risk factors for the formation of addictive behavior and dependence are as follows: individual-personal (male gender, personal immaturity, low level of responsibility, tolerance, predominance of negative thinking, high level of anxiety and depression and neurotic disorders) and social environment (father's weak position in the family, lack of trust between father and child, separate role is played by a lack of desire to learn and frustration in the future profession).

The primary psycho-prophylaxis should include adequate career guidance, reduction in the level of educational stress and training for personal growth, early identification of a risk group. The secondary psycho prophylaxis consists in the qualified assistance of a medical psychologist and a doctor-psychotherapist, aimed at freeing from dependence and reorienting the individual to constructive activities.

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