

THE RISK ASSESSMENT PRACTICE IN THE HYGIENIC AND EPIDEMIOLOGICAL STUDIES

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ASSESSMENT OF RISK ASSOCIATED WITH EXPOSURE TO TOBACCO AND ALCOHOL ON HEALTH OF THE CADETS OF MILITARY INSTITUTE AND ITS PREVENTION METHODOLOGY

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The work is devoted to the studies of the problem of smoking and alcohol use among cadets of military institute as well as to the risk of diseases' developing when using nicotine and alcohol. We have proposed the methods for solving this problem in the educational institution.

This article describes not only the problem among the cadets of military institute, but also the calculated risks. Particular attention is paid to the study of the methods of controlling the bad habits in the educational institution and reduction of the number of smokers and drinkers among the cadets.

Key words: risk assessment, smoking, alcohol, healthy lifestyle, methodology

Recently many Russian mass media contain the articles and remarks which discuss the update of technology intensiveness of the military forces, improvement of the social establishment for the military servicemen and their families, but seldom they cover the issue on the health of the military serviceman themselves and those who are ready in future to take their place – on the cadets of military institute. Indeed, for successful implementation of the professional training in the system of military institutes, first of all, it is necessary to have the cadets having the high level of health, resistant to the physical and psychoemotional loads and leading a healthy life.

But actually we have the deterioration in the health indicators of cadets from the first to the last year of education instead of their increase (on which the ideology of the professional military staff trainings is based). The prevalence of tobacco and alcohol consumption is one of the reasons. Thus, in the military teams according to the statistics the prevalence of smoking among the recruits is about 40-50% and under the alcohol consumption – 20-30%. On the one hand, this reflects the All-Russian trend, and on the other hand, it is stipulated by the army recruiting peculiarities (officers from amongst the persons with low level of

education) [1, 6, 9].

In order to assess the extent of prevalence of tobacco smoking and alcohol abuse among the cadets of military institutes as well as within the long-term target program “Forming the healthy lifestyle in the population of Novosibirsk region for 2012-2015” aimed at the early detection of the factors of risk for the development of chronic non-contagious diseases and the formation of healthy lifestyle in the population of Novosibirsk region we conducted the study among the cadets of Novosibirsk Military Institute of the Internal Troops named after general of the Army I.K. Yakovlev of the Internal Affairs of Russia.

Materials and methods. We tested new questionnaires executed in accordance with methodical approaches recommended by the Federal Service for Consumer Rights Protection and Human Well-Being Surveillance [2, 5], and developed by the Regional center of medical prevention of Novosibirsk region in 2011 the form of questionnaire “Assessment of the tobacco smoking prevalence among the different group of population”.

The respondents of I and IV years of education of Novosibirsk Military Institute of the Internal Troops named after general of the Army I.K. Yakovlev of the Internal Affairs of Russia were selected for the study. The sampling population included 353 ca-

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dets; the average age of respondents was 20 years (18 to 27 years). The questioning of cadets was performed in order to obtain the information on the prevalence of tobacco smoking and alcohol consumption.

The individual and combined risk of the ischemic heart disease (IHD) development was calculated. The indicators of the daily intake of nicotine to the body (F^K) calculated under the following formula were used to assess the dependence “factor – effect” in relation to the impact of active smoking on the health of students:

$$F^K = \frac{\sum S_i K_i}{n}, \quad (1)$$

where S_i is an average (for the sampling) number of cigarettes consumed on day i , pcs.; K_i is an average content of nicotine (for the sampling) in cigarette, mg; n is a number of days included into the analysis.

The indicator of daily intake of pure alcohol to the body (F^A) is used to assess the dependence “factor – effect” in relation to the alcohol abuse impact on the health of human:

$$F^A = \frac{\sum_i \sum_b A_i^b k^b}{n} \quad (2)$$

where A_i^b is a quantity of alcoholic beverage of type b consumed on day i ; g ; k_b is a coefficient of conversion to “pure alcohol” for the of alcoholic beverage of type b ; n is a number of days taken for analysis.

The level of individual risk in the range of $1 \cdot 10^{-4}$ to $1 \cdot 10^{-3}$ and over $1 \cdot 10^{-3}$ was characterized as unacceptable, in the range of $1 \cdot 10^{-6}$ to $1 \cdot 10^{-4}$ – as acceptable risk.

The cadets who often use the alcohol and also smoke are included into the study:

- I year of education – 10 persons (smoke and use the alcohol from the age of 18 years);
- IV year of education – 81 persons (smoke from the age of 7 years; use the alcohol from the age of 9 years).

When exposed to the tobacco smoking and alcohol the risk of the ischemic heart disease in the cadets of the I year of education qualified as unacceptable will be achieved by the age of 38 years ($1,06E-04$); the results are specified in table 1.

The unacceptable risk of IHD development in the cadets of the IV year of education will be developed and formed by the age of 32 years ($1,15E-04$) that is demonstrated in table 2.

Table 1

Individual risk of IHD development in the cadets of the I year of education (median risk values in each group)

Age, years	When exposed to tobacco smoking	When exposed to alcohol	Combined risk
16–29	3,31E-06	2,50E-06	5,82E-06
30–39	2,36E-05	2,21E-05	4,57E-05
40–49	2,13E-04	1,36E-04	3,49E-04
50–59	1,31E-03	8,33E-04	2,15E-03
Older than 60	2,18E-02	1,38E-02	3,56E-02

Table 2

Individual risk of IHD development in the cadets of the IV year of education (median risk values in each group)

Age, years	When exposed to tobacco smoking	When exposed to alcohol	Combined risk
16–29	8,99E-06	1,06E-05	1,96E-05
30–39	8,26E-05	9,94E-05	1,82E-04
40–49	5,09E-04	6,14E-04	1,12E-03
50–59	3,13E-03	3,78E-03	6,91E-03
Older than 60	5,19E-02	6,27E-02	1,15E-01

The provided results demonstrate that the unacceptable risk requires the development of measures aimed at the behavioral risk factors correction.

First, the introduction to the program of training (at any level of education) of thematic and practical courses/lessons aimed at the formation of the health-preserving behavior in the students is considered as such measures that will allow for preserving and strengthening the health of future generations and

increase the common health culture among the population.

To study the offers on the health life promotion and increasing its motivation the questionnaire proposed to the responding cadets the issue on the measures contributing to the formation and fixation of such motivation which is necessary for Novosibirsk Military Institute of the Internal Troops named after

general of the Army I.K. Yakovlev of the Internal Affairs of Russia.

The increase in the number of hours provided for physical training of future officers was recognized as the most popular measure understandable for the cadets (almost 60% of respondents selected this option). From them 8.5% would like to know on the principles of valeological knowledge within the received education, and little more than 7.0% proposed to introduce the disciplinary prohibition in relation to the vicious habits of military servicemen.

About 23% of cadets wished to study the principles and skills of health lifestyle within the higher education obtainment. Almost one fourth of them consider as necessary the combination of such lessons with additional hours of physical training.

About 2% of respondents voted for the simultaneous introduction of three proposed directions in the formation of stable (during the whole life) motivation to the healthy lifestyle conduction.

Taking into account the performed study in the military institute it is necessary to take the targeted measures on the activation of sanitary and preventive work as well as to use the different forms of stimulation for the persons refused from the tobacco smoking and alcohol consumption [5].

We developed the certain offers on the decrease of the number of persons with habits of tobacco smoking and alcohol consumption:

1. The system of education shall actively use the possibilities of school subjects. Practically all the disciplines of the legal disciplines department have the education potential based on which it is possible to train the cadets in forming the legal assessments of problems associated with vicious habits. The subjects studied at the departments of military disciplines will allow for cadets to assess the decrease of combat effectiveness of troops and subdivisions associated with smoking and alcohol: the smoking people unmask themselves by light and smell, the open flame of match and cigarette can result in the explosion of fuels and lubricants or ammunition, the drunken people have the deteriorated reaction and sensibility, etc.

2. To activate the academic and scientific work through the organization and conduction of conferences, preparation of reports, round tables and interviews that will allow for the cadet himself to assess these problems.

3. Formation in the military servicemen of the stable priority of healthy lifestyle excluding the consumption of tobacco and alcohol, as well as the

involvement of commanders (heads) of all the ranks to the formation of the stable social priority "Life without vicious habits".

4. Introduction of the cycle of lectures "Health and healthy lifestyle" into the education program for cadets of I year of education.

Therefore, taking the above considered measures will allow for increasing the level of the military servicemen awareness on the harmful consequences of the tobacco and alcohol consumption and will form the negative image of consumer inflicting the harm to his health and the health of surrounding people.

Taking into account the fact that almost one fourth of respondent would like to see the course of the healthy lifestyle basics in the program of education the teachers of Novosibirsk Military Institute of the Internal Troops named after general of the Army I.K. Yakovlev of the Internal Affairs of Russia at the participation of specialists of State Public Institution of Healthcare in Novosibirsk region "Regional center of medical prevention" developed the educational and methodical complex "Health-preserving behavior as the basics of the professional success strategy" forming the motivating environment inside the educational institution, and contributing to the supporting and strengthening of health for all the participants of educational process.

The tendency to implement and support at the high level the health-preserving education technologies are the basis of the high competitive ability of the higher educational institution and its successful activity at the market of educational services.

The ensuring, preservation, strengthening and improvement of the health of student becomes the important component of the modern higher vocational education – the reflection of public order for the training of not only literate specialist, but also the human capable to resist effectively the stresses, natural-climatic, ergonomic, social and other factors affecting the working capacity and general well-being of human [2].

The analysis of modern recreational systems of higher military educational institutions demonstrates that they are based (at all the depth of structural modernization and completeness of provision with medical equipment) as a rule on the technologies for revealing of already sick cadets. These systems are unprofitable at the expense of very large consumption of human and financial resources spent to the accounting and reporting on the morbidity of students before the overhead organizations.

According to the requirements of international ISO 9000 standards it is necessary to have the principally new systems having the continuous cyclical character and based on the technologies for forming the motivations to the healthy lifestyle and early prenosological diagnostics of the condition of health of cadets.

Such approach allows not only to support but also to strengthen the health of each cadet during the whole period of education as well as to form the stable understanding of requirements of future profession to the life of modern officer.

The higher educational institution acting as the responsible producer of the unique educational products and services builds such system of education which guarantees for students the obtainment of not only qualitative but also the safe for health education [2].

The idea of creating the educational and methodical complex "Health-preserving behavior as the basics of the professional success strategy" on the basis of Novosibirsk Military Institute of the Internal Troops named after general of the Army I.K. Yakovlev of the Internal Affairs of Russia completely meets the following:

- the model of the healthy lifestyle medical and social projecting system (Zakharova M.A., 2009);
- complex plan of healthy lifestyle formation and prevention of non-contagious diseases proposed by S.A. Boytsov, i.e. is a part of scheme for the implementation of unified preventive environment.

Being also supported by the target and educational-methodical programs "Health preservation" applicable in the different educational institutions it is feasible to propose the scheme (algorithm) for creation and regulation (optimization of functioning) of programs on forming the health-preserving behavior among the students of higher vocational educational institutions (see figure).

Thus, during the educational and methodical complex implementation:

– ensuring the optimum sanitary and hygienic conditions of work and education will contribute to the supporting and strengthening the health of all the participants of the educational process;

– due to the conduction of timely preventive measures of medical and physically-recreational character it is necessary to expect the decrease in the level of morbidity of students and employees;

– due to the decrease in the level of morbidity of students and employees of institution and optimization of the educational process it is necessary to expect the increase in the efficiency of educational and working activity;

– due to the increase of awareness on the methods for preservation and strengthening of physical, psychological and social health it is necessary to expect the formation of deliberate and responsible relation to own health and health of surrounding people in all the participants of educational process as well as the stable orientation to healthy lifestyle ensuring the health-preserving behavior and refusal from smoking, use of drugs, alcohol and other psychoactive substances;

– at the expense of increase in the efficiency of the system of information and educational support and promotion of physical culture and sports as the guarantee of health and active longevity of human it is necessary to expect the increase in the number of students and employees actively engaged in physical training and sports as well as improving the image of educational institution at the expense of successful performances of picked teams and separate sportsmen of the higher educational institution at the high level competitors;

– increase of the comfort for the conditions of living and diet of the students and employees ensuring their complete rest and leisure time will contribute to the mental and moral health of the participants of process;

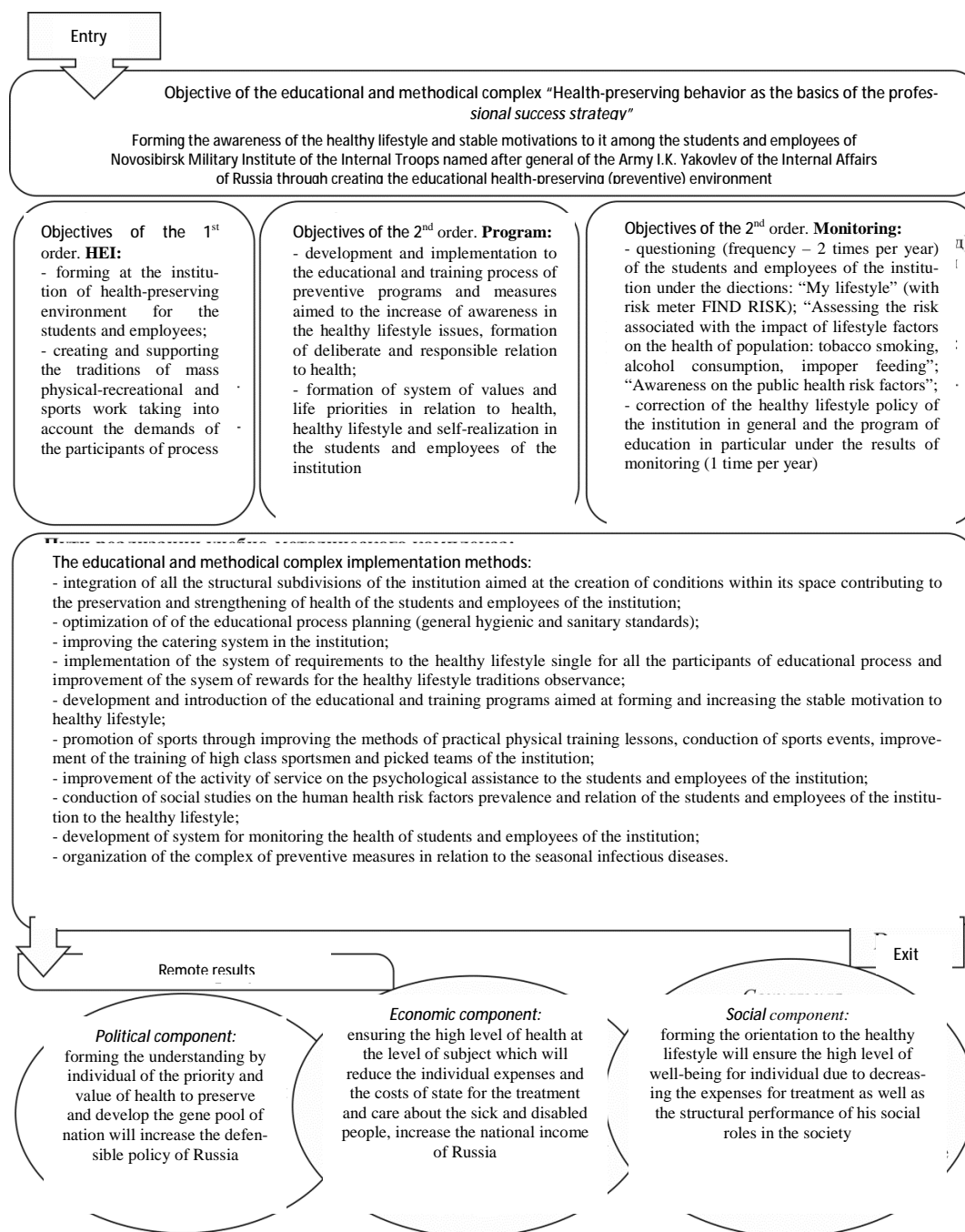


Fig. Algorithm for regulating the health-preserving behavior formation programs

– process at the expense of increase in the adaptive abilities of employees and students it is necessary to expect the decrease in the duration of their staying on the sick leave that also will result in the improvement of the educational process quality.

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