

# The study of factors influencing the effectiveness of medical examination of military personnel. The level of preventive activity of military personnel. The role of information in increasing the coverage of medical examinations

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**Abstract:** To assess the level of preventive activity of military personnel, we will consider the factors determining this activity. According to the report on the study of the state of medical provision of the Armed Forces of the Republic of Uzbekistan, conducted jointly by specialists from the Central Military Clinical Hospital of the Ministry of Defense of the Republic of Uzbekistan and the Scientific Research Institute of Military Medicine (based on the Military Medical Academy of the Armed Forces of the Republic of Uzbekistan).

**Keywords:** Medical Examination, Military Personnel, Military Clinical Hospital.

**Introduction:** To assess the level of preventive activity of military personnel, we will consider the factors determining this activity. According to the report on the study of the state of medical provision of the Armed Forces of the Republic of Uzbekistan, conducted jointly by specialists from the Central Military Clinical Hospital of the Ministry of Defense of the Republic of Uzbekistan and the Scientific Research Institute of Military Medicine (based on the Military Medical Academy of the Armed Forces of the Republic of Uzbekistan), such factors are:

- 1) Health level;
- 2) The level of availability of preventive care;

- 3) The level of medical awareness of military personnel;
- 4) The level of trust in prevention;
- 5) The level of personal attitude to health;
- 6) Vaccination rate;
- 7) Coverage of medical examinations (occupational examinations) in % of the regulated amount;
- 8) Medical examination coverage (stage 1) in % of the regulations;
- 9) Medical examination coverage (stage 2) in % of the regulations.

Designation of factors in statistical calculations:

- ZD, DPU, INF, DOV, LOZ, VC, OMO, OD1, OD2, respectively.

The data presented in the report are the processed results of a survey of military personnel and their medical indicators. The study was based on 684 military personnel, including 296 conscripts and 388 commissioned officers and military personnel (privates, sergeants).

Next, we will conduct a factor analysis to determine the impact of each of the above nine factors on the level of preventive activity of military personnel.

When making calculations within the framework of factor analysis, the adequacy of its application was assessed first. The calculated measure of the adequacy of the Kaiser-Meyer-Olkin (KMO) sample was 0.891, which is a very good result, which indicates a high degree of applicability of factor analysis. The Bartlett sphericity criterion, the significance of which is  $<0.05$ , indicates the same thing.

Let us construct a correlation matrix to determine the degree of mutual influence of

**Table 1 – Correlation matrix**

	ZD	DPU	INF	DOV	LOZ	VC	OMO	OD1	OD2
ZD		0,255	0,248	0,192	0,225	0,117	0,087	0,197	0,278
DPU	0,255		0,582	0,458	0,409	0,425	0,03	0,395	0,68
INF	0,248	0,582		0,481	0,487	0,457	0,031	0,475	0,741
DOV	0,192	0,458	0,481		0,401	0,43	-0,045	0,409	0,622
LOZ	0,225	0,409	0,487	0,401		0,382	0,013	0,364	0,565
VC	0,117	0,425	0,457	0,43	0,382		0,052	0,416	0,58
OMO	0,087	0,03	0,031	-0,045	0,013	0,052		-0,003	0,034
OD1	0,197	0,395	0,475	0,409	0,364	0,416	-0,003		0,62
OD2	0,278	0,68	0,741	0,622	0,565	0,58	0,034	0,62	

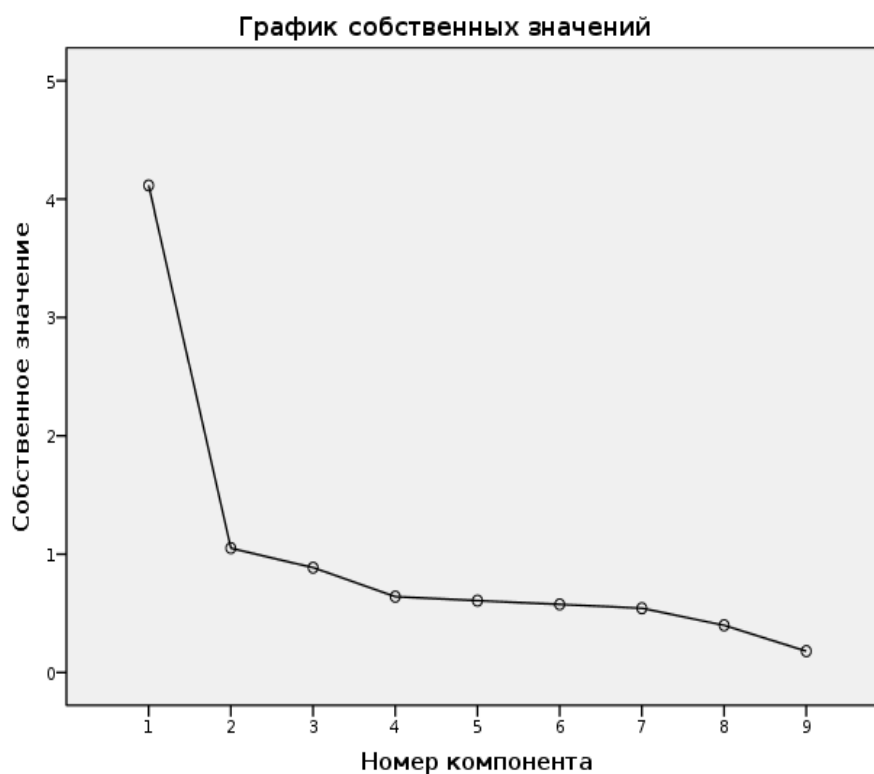
The relationship of factors with a correlation above 0.5 is highlighted in color.

Further, the explained cumulative variance is calculated in table 2.

**Table 2 – Explained cumulative variance**

Component	Initial eigenvalues			Rotation of the sum of the squares of the loads		
	Total	% of Variance	Totals %	Total	% of Variance	Totals %
1	4,116	45,735	45,735	1,118	12,42	12,42
2	1,051	11,681	57,416	1,113	12,37	24,791
3	0,886	9,847	67,263	1,091	12,117	36,908
4	0,641	7,123	74,386	1,085	12,057	48,965
5	0,607	6,747	81,133	1,08	12,001	60,966
6	0,576	6,397	87,53	1,078	11,982	72,948
7	0,543	6,035	93,565	1,027	11,413	84,361
8	0,399	4,431	97,996	1,002	11,128	95,489
9	0,18	2,004	100	0,406	4,511	100

The table shows that 8 factors explain 98% of the variance.

**Figure 1 – Eigenvalues of the components**

In order to understand which of the initial factors the inverted component matrix corresponds to a particular component, we calculate

**Table 3 – Inverted matrix of components**

	1	2	3	4	5	6	7	8	9
<b>ZD</b>							<b>0,983</b>		
<b>DPU</b>	0,147	<b>0,904</b>	0,181	0,232	0,166	0,155	0,112		0,103
<b>INF</b>	0,199	0,255	0,189	<b>0,872</b>	0,182	0,207	0,104		0,115
<b>DOV</b>	0,161	0,175	<b>0,919</b>	0,17	0,173	0,156			
<b>LOZ</b>	0,135	0,147	0,151	0,178	0,145	<b>0,932</b>			
<b>VC</b>	0,169	0,158	0,169	0,16	<b>0,928</b>	0,147			
<b>OMO</b>								<b>0,998</b>	
<b>OD1</b>	<b>0,932</b>	0,138	0,154	0,171	0,166	0,134			
<b>OD2</b>	0,334	0,356	0,311	0,388	0,279	0,269	0,122		0,591

It can be seen from the table. That the most significant component 1 corresponds to the factor of Medical check-up coverage (stage 1);

Next, in descending order of importance, the factors

are:

The level of availability of preventive care;

The level of trust in prevention;

The level of medical awareness of military personnel;  
Vaccination rate;  
The level of personal attitude to health;  
Health level;  
Medical check-up coverage

The factor of medical check-up coverage (stage 2) can be neglected due to its insignificant impact.

Informing military personnel about the importance of medical examinations is a key aspect in the system of ensuring the health of personnel, since it not only helps to raise awareness of preventive measures, but also forms a stable motivation for regular medical examinations. In a modern society characterized by high dynamics of changes in the field of medicine and healthcare, as well as increasing complexity of socio-economic factors affecting health, it is important to provide military personnel with up-to-date information about the benefits of medical examinations, which, in turn, can significantly increase the coverage of this important preventive measure.

Medical examination is a complex of measures aimed at early detection of diseases and their prevention, which is of particular importance in the context of military personnel, whose physical and psychological readiness directly affects the combat capability of the armed forces. For the successful implementation of the medical examination program, it is necessary not only to realize its importance, but also the active participation of the military personnel themselves in the process. This participation is impossible without a proper level of awareness, which includes an understanding of both the goals and objectives of medical examination, as well as personal responsibility for one's own health and the health of colleagues.

Lack of awareness of this responsibility can lead to ignoring regular medical examinations, which in turn negatively affects the health of military personnel. Ignoring medical examinations can lead to the fact that diseases will be detected at later stages, when their treatment becomes more complex and costly, as well as less effective. As a result, not only the individual state of health of the serviceman deteriorates, but also the general readiness of the unit to perform combat missions, which can have serious consequences in modern conflicts.

Thus, informing military personnel about the importance of medical examinations becomes an integral element of the strategy to increase the coverage of this preventive measure. An effective information policy creates the prerequisites for the formation of an active position among military personnel regarding their own health and the health of

others. This requires the development and implementation of a variety of communication formats and channels that will be adapted to the specifics of military service and different levels of education and information perception among military personnel.

A key aspect of this process is to create an environment conducive to open health dialogues, where military personnel can ask questions, express their concerns, and receive qualified answers from medical professionals. This creates not only trust in medical institutions, but also contributes to a more active involvement of military personnel in the medical examination process.

It should also be taken into account that the information should be continuous and systematic. It is important that military personnel not only receive information about medical examinations at the time of its implementation, but also be involved in educational programs that will help them understand the importance of preventive measures and their impact on health in the long term. In this context, we can talk about the need to integrate health issues into the general educational process, which will allow military personnel to develop a stable motivation for regular medical examinations.

An important aspect in the context of the medical examination of military personnel is the use of various formats and communication channels that make it possible to effectively convey information to the target audience. In modern conditions, when information is becoming a key resource, it is necessary to apply both traditional methods and modern approaches to ensure maximum coverage and involvement of military personnel in the process of taking care of their health.

Traditional methods such as lectures and seminars remain relevant and useful. They create an opportunity for direct interaction between medical specialists and military personnel, which contributes to a deeper understanding of the topic of medical examinations and the importance of regular medical examinations. Lectures can be organized as part of training sessions, which allows you to integrate health information into the overall educational process. Seminars, in turn, can include interactive elements such as discussions and practical exercises, which makes the learning process more exciting and memorable.

The distribution of information materials such as brochures, booklets and posters also plays an important role in informing military personnel. These materials may contain key information about the importance of medical examinations, procedures to be followed, and recommendations for maintaining health. It is important that such materials are

developed taking into account the specifics of military service and the perception of information by military personnel, so that they are understandable and accessible.

On the other hand, modern approaches, such as the use of digital technologies, open up new horizons for information. Mobile applications can provide military personnel with access to medical check-up information anytime, anywhere. These may include reminders for upcoming medical checkups, as well as educational resources to help military personnel better understand the importance of preventive measures. Social media, in turn, can serve as a platform for the exchange of experience and knowledge between military personnel, as well as for the dissemination of health information in a more informal setting.

However, the effectiveness of such measures largely depends on their adaptation to the specifics of the military environment. It is necessary to take into account the peculiarities of the psychology of military personnel, their daily life and professional activities. Military personnel often face high levels of stress, physical and psychological stress, which can affect their perception of health information. Therefore, it is important that communication strategies be developed considering these factors, creating an environment in which military personnel will feel comfortable and are ready to openly discuss issues related to their health.

In addition, it should be borne in mind that military personnel may be limited in time due to their official duties, so information should be presented briefly and to the point. Using visual elements such as info graphics and videos can significantly increase the receptivity of information and make it more accessible. It is also important to create opportunities for feedback so that military personnel can ask questions and receive answers, which helps build trust in medical services and increases their involvement in the medical examination process.

In the context of medical examinations of military personnel, special attention should be paid to the fact that the information process should not be considered as a unilateral act in which information is transmitted from medical specialists to military personnel without the possibility of feedback. An important aspect of effective communication is the creation of a system in which military personnel can not only receive information about medical examinations, but also actively participate in discussions, ask questions, express their concerns and suggestions. This approach contributes to the formation of an atmosphere of trust and engagement, which, in turn, significantly increases the level of participation of military personnel in

processes related to their health.

Research in psychology and medicine shows that when people have the opportunity to interact with a source of information, they become more interested and motivated to participate in proposed activities. In the case of military personnel who are often exposed to stressful situations and have specific needs, having a feedback channel can play a crucial role in their perception of medical services. The opportunity to express their concerns or ask questions allows military personnel to feel heard and meaningful, which contributes to a higher level of satisfaction with the information and medical services they receive.

In addition, the active involvement of military personnel in the process of informing and receiving medical services is directly related to their willingness to undergo medical examinations. When military personnel realize that their opinions matter and that they can influence the process, it creates a sense of control over their situation. This perception, in turn, can lead to a decrease in anxiety levels and an increased willingness to undergo necessary medical procedures.

Creating an effective communication strategy that includes feedback elements is becoming a critical step to increase the level of military personnel's participation in medical examinations. This may include not only traditional methods such as meetings and seminars, but also modern technologies that allow anonymous surveys, online forums, and other forms of interaction. Thus, military personnel will be able to share their experiences, ask questions and discuss important topics for them, which will not only raise awareness, but also strengthen trust in medical services.

In the process of developing and implementing programs to inform military personnel about medical examinations, it is extremely important to take into account that the level of education and awareness among this group can vary significantly. This diversity requires a differentiated approach that takes into account the specific needs, preferences, and habits of different audience segments. In particular, the younger generation, who grew up in the era of information technology, shows a greater tendency to use interactive platforms and visual materials, due to their habit of receiving information in a dynamic and accessible form. They are more likely to interact with content through digital devices such as smartphones and tablets, which makes it necessary to use modern technologies, including mobile applications, online courses and multimedia presentations. These tools can not only provide access to information anytime,



anywhere, but also create a more engaging and engaging experience that will facilitate better learning.

On the other hand, older military personnel, who may be less familiar with modern technologies or prefer traditional communication methods, may have difficulty accepting information presented in high-tech formats. It is important for this group to use more familiar forms of communication, such as printed materials, lectures, seminars, and face-to-face meetings with medical professionals. These methods allow for more personal contact, which can be especially important for military personnel who value traditional approaches to training and interaction.

Thus, competent segmentation of the audience and the adaptation of the content of information materials to specific groups of military personnel become crucial factors for improving the effectiveness of information. The creation of various versions of information materials that take into account the level of education, age, professional experience and personal preferences of military personnel will allow for a deeper understanding of the importance of medical examinations and involvement in the process of taking care of their own health.

In addition, such differentiation helps to reduce barriers to the perception of information, which is especially important in the context of medical examinations, where understanding and accepting the recommendations of medical specialists play a key role. It is also important to take into account that the level of trust in medical services may vary depending on the previous experience of military personnel, which also highlights the need for an individualized approach. As a result, the creation of adapted information materials and the use of suitable communication channels for different groups of military personnel will not only increase awareness, but also contribute to the formation of an active position regarding their health, which will ultimately have a positive impact on the overall health and combat capability of the armed forces.

In general, it can be argued that the role of information in increasing the coverage of medical examinations for military personnel is multifaceted and comprehensive, covering both aspects of psychological training and organizational aspects related to the implementation of preventive measures. An effective information policy aimed at raising awareness of the importance of medical examinations is a prerequisite for the formation of a health culture in the army, which, in turn, will contribute not only to improving the health of military personnel, but also to increasing the overall combat capability of the armed forces, which is of

critical importance in modern conditions.

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