

# Determination and Evaluation of Negative Informational and Psychological Influence on the Military Personnel Based on the Quantitative Measure

Igor Korobiichuk<sup>1</sup>[0000-0002-5865-7668], Petro Snitsarenko<sup>2</sup>[0000-0003-1380-4959],  
Vitaliy Katsalap<sup>2</sup>[0000-0003-4804-8022], Ruslan Hryshchuk<sup>3</sup>[0000-0001-9985-8477]

<sup>1</sup>Warsaw University of Technology, Institute of Automatic Control and Robotics, Warsaw, Poland

<sup>2</sup>National Defence University of Ukraine named after Ivan Cherniakhovsky, Kyiv, Ukraine

<sup>3</sup>Sergey Korolyov Zhytomyr Military Institute, Cybersecurity Department of the Research Center, Zhytomyr, Ukraine

igor@mchtr.pw.edu.pl, cvsdnaou@i.ua,  
typimicku@i.ua, dr.hry@i.ua

**Abstract.** Hereunder presented an approach of creation of the method of determination and evaluation of negative informational and psychological influence on the military personnel by using of expert's procedures as an integral part of counteraction system against such influence on the cybernetic principle.

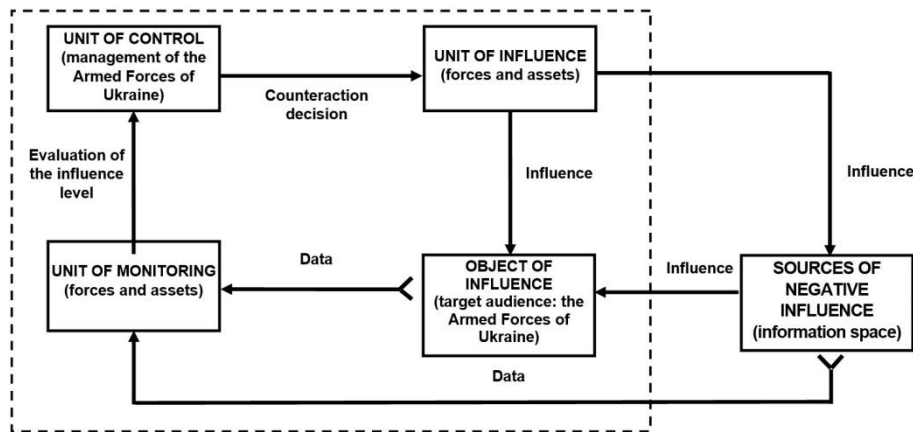
**Keywords:** Negative Informational, Psychological Influence, Resistant System, Military Personnel, Expert's Method, Cybernetic Model.

## 1 Introduction

During military conflicts an important role was always nominated to the informational and psychological influence on the armed forces (military formations) of adversary. Nowadays, in conditions of information technologies development and increasing of communicative abilities this role is significantly raised up. This circumstance reached particular importance for Ukraine during last few years, when poignantly and sensitively came out the results of negative informational and psychological influence, first of all external, particularly on the personnel of the Armed Forces of Ukraine. That is why the resistance against such influence is an actual task with high priority. Effective counteraction to the negative external informational psychological influence, particularly on the military personnel can be realized on the scientific base only. Along with that, the selection of effectiveness indicator, which has to be operated by the respective influence, is the most important. The level of morale and psychological condition of personnel of the Armed Forces of Ukraine has to be considered as such indicator of effectiveness. Based on that, there is requirement for the system of social control, where the main object of control is the level of morale and psychological condition of the Armed Forces of Ukraine.

## 2 Materials and Methods of Research.

It is important to provide the durability of such control, which is achieved when its model is functioning in accordance with the cybernetic principle [1] with so-called “direct” and “back” couplings, as it shown on the fig.1.



**Fig. 1.** Cybernetic model of realization of counteraction to the negative informational and psychological influence on military personnel

This model adoptively provides counteraction to the negative informational and psychological influence on troops with the following necessary fraises:

- influence recognition;
- evaluation of the influence level;
- formulation of conclusions from evaluation of influence level and decision in regards of necessity of counteraction;
- planning of the counterinfluence level in accordance with the plan;
- control and correction the results of counterinfluence actions.

Model, as per figure 1, acts effectively if its working algorithm is based on clear quantitative measurements, especially parameters (characteristics) of condition of target audience, which is the object of control.

On the practice, this model in the Ministry of defence and in the Armed Forces of Ukraine is partly realized in the frame, outlined by dotted line (fig.1). In this circumstances, the evaluation of the negative informational and psychological influence is carried out up no the consequences, it means “post factum” and indirectly – via evaluation of the level of moral and psychological condition of personnel of the Armed Forces of Ukraine, which is an indicator of *aggregated influence on the military target audience, that has already happened*. This evaluation, in accordance with existed Army methodologies, is determined in general qualitative format due to principle of “ability - inability”. At the same time, this is not enough for implementation of *advanced stabilization actions* (it should be influence actions as on personnel of the

Armed Forces of Ukraine and on harmful information sources), because this approach *does not need quantitative evaluation and analysis of the dynamic* of negative influence, which appears from the information space. Therefore, this is a disadvantage of today's working system, which sets the problem and needs efforts to be solved through implementation of effective procedures of monitoring of the state information space. The analysis of famous publications [2-11] shows existence of great number of high professional works in the context of technical aspects of influence on social objects with the purpose to stabilize their conditions. But researches on the base of cybernetic principles of such system's status control, which use the results of the state information space monitoring in the interests of detection and evaluation of information influence in quantitative measure on a certain target audience, particularly on military, have not developed yet.

In accordance with mentioned above, the article's purpose is to justify an approach of detection and evaluation of the negative informational and psychological influence on personnel of the Armed Forces of Ukraine in the quantitative measure in the interest of realization of cybernetic model of counteraction to such influence and implementation of advanced stabilizations actions.

### **3 The Results of Research**

First let us define, that informational and psychological influence is a regulated or unregulated informational intervention in conscious (or subconscious) of target audience, which can cause the correction of its behavior and (or) outlook, changes of morale and psychological conditions. Modern regulated tools of informational and psychological influence could be technical assets (first of all radio, TV, social computer networks), printed media, public voice agitation, agency activity etc.

Unregulated tools of such influence is verbal communication among people and their own observations of certain reality. The result of information perception could be an appearance of positive or negative emotions, feelings and reactions (actions) among the target audience, which are directed to weakening or strengthening of will, changing ability for active resistance, creating of the feeling of scare, despair, uncertainty or courage, bravery, firmness etc., that finally determines the level of morale and psychological condition of the target audience.

Dilution of morale and psychological condition of troops can be caused by the negative informational and psychological influence on military target audience selectively (separate special army objects: staffs, command posts, centers of control, editorial offices of military media and separate officials) and generally (to all personnel of armed forces or other military formations).

For methodical evaluation of the level of negative informational and psychological influence on armed forces, it is necessary to have a certain group of indicators and for determination of its significance until critical (allowable) level – appropriate criteria. Keeping in mind, that destructive information processes, which occur in the state information space, influence on the military personnel and leave certain reflection in their conscious, it is possible to affirm, that for the quantitative evaluation of its inten-

sity as an integral characteristic (measure) of action to the military personnel by aggregation of all information processes during certain period of time  $\Delta T$ :

$$\text{Intensity } \chi = \frac{\text{Processes action measure}}{\Delta T} \quad (1)$$

Value of the indicator  $\chi$  during the period  $\Delta T$  can take certain grades – from the minimal and higher. Then, the escalation dynamic of intensity of the general destructive information process in the state information space during certain period of time  $\Delta T$  in relation to the military personnel can be specified by conditional step function of levels, which have to be accepted as partial indicators of influence. Moreover, it is expedient to put transition to each level in relation to a certain criterion due to the scale of assessments  $\chi$ :  $\chi_1 \dots \chi_5$ . Considering this, let us deter necessary definitions that allows qualitatively understanding of meaning of partial indicators of the level of negative informational and psychological influence in relation to the military personnel:

- *the level of informational background* – is the practical absence of observation of information processes (actions, facts) during the time  $\Delta T$  in the state information space, which can cause negative (destructive blasting) character in respect to the military personnel;
- *the level of challenge* – quantity of information processes (actions, facts) during the time  $\Delta T$ , detected in the state information space as potentially (in a certain conditions) able to create informational and psychological threat to the military personnel;
- *the level of informational and psychological threat* – quantity of destructive information processes (actions, facts) during the period  $\Delta T$ , detected in the state information space, which finally can decrease *the level of morale and psychological condition* of the military personnel;
- *the level of informational and psychological influence display* - quantity of destructive information processes (actions, facts) during the period  $\Delta T$ , detected in the state information space, which, as the result, have a signs of decreasing of *the level of morale and psychological condition* of the military personnel;
- *the level of loss (recoverable losses)* – quantity of destructive information processes (actions, facts) during the period  $\Delta T$ , detected in the state information space, which decrease *the level of morale and psychological condition* of the military personnel, but can be compensated by available abilities during the time, enough for effective fulfilling the assignment tasks;
- *the level of collapse of morale and psychological condition of troops* - quantity of destructive information processes (actions, facts) during the period  $\Delta T$ , detected in the state information space, which cause *significant decreasing of the level of morale and psychological condition* of the military personnel, which cannot be compensated by available abilities during the time, enough for effective fulfilling the assignment tasks.

It is necessary to admit, that the levels of background, challenge and threat are not the indicators of influence detection, which can be registered starting from the level of

influence display only. Because of mentioned above, there are tasks occurred, which require solving for detection and evaluation of the level of negative informational and psychological influence on troops based on the quantitative measure:

- how to rate intensity on the scale  $\chi$ ?
- What should be the gap  $\Delta T$ , enough for observation of information processes (actions, facts) in the state information space?
- How to define criteria  $\chi_1 \dots \chi_5$  for quantization of levels of destructiveness of information processes (actions, facts) in the state information space?

Based on poorly structures settled tasks and difficulties, caused by establishing of directed analytical connections between different information processes, which take place in the state information space, for getting the solution it is acceptable to use an expert method.

An expert method is realized by the independent expert poll (questionnaire) of specialists, whose practical activity connected with information processes or morale and psychological support of the Armed Forces of Ukraine and other stare military formations on the three-staged procedure. Its meaning, particularly in concern of the Armed Forces of Ukraine is as follows.

*Stage 1* is for determination (by expert poll) of:

- the list of information processes (actions, facts), which are possible in the state information space, significant for the influence on the personnel of the Armed Forces of Ukraine;
- the period  $\Delta T$ , enough for getting observation statistic of the information (actions, facts) sights, which can have negative effect for morale and psychological condition of the personnel of the Armed Forces of Ukraine.

At the Stage 1, it was relieved the list of possible information processes (actions, facts), which are causing informational and psychological influence on the military personnel. This list is shown in the table 1. The weighted-average value of monitoring period  $\Delta T$  reached around seven months. In order to get more constant statistic the monitoring period was increased up to one year.

**Table 1.** Classification list of possible information processes (actions, facts), which are causing informational and psychological influence on the military personnel

№	Types of information processes (actions, facts)
1	Spreading of mass media* messages about new achievements the sphere of military technologies in remote country**.
2	Spreading of mass media messages about new achievements the sphere of military technologies in neighboring country.
3	Messages (comments) of mass media regarding possible aggressive intents on the side of certain subjects: <ul style="list-style-type: none"> <li>a) states;</li> <li>b) separate organizations;</li> <li>c) separate unofficial persons,</li> </ul>

№	Types of information processes (actions, facts)
4	<p>which can have negative effects for the information infrastructure of military sphere, state defence capability and national security in general.</p> <p>Mass media messages about statements by officials about possible aggressive intents, which can have negative effects for the information infrastructure of military sphere, state defence capability and national security in general:</p> <ol style="list-style-type: none"> <li>a) foreign media about aggressive statements by officials of remote states;</li> <li>b) foreign media about aggressive statements by officials of neighboring states;</li> <li>c) national media about aggressive statements by officials of remote states;</li> <li>d) national media about aggressive statements by officials of neighboring states.</li> </ol>
5	<p>Receiving (existence) of reliable information about aggressive intents of remote states, which can have negative effects for the information infrastructure of military sphere, state defence capability and national security in general.</p>
6	<p>Receiving (existence) of reliable information about aggressive intents of neighboring states, which can have negative effects for the information infrastructure of military sphere, state defence capability and national security in general.</p>
7	<p>Saturation of the domestic information space with products for influence on individual and mass conscious of national military formations personnel (from the side of foreign media, provocative national media, own non-patriotic population) in order to weaken their readiness for state defence and deteriorating image of the armed forces and army service by:</p> <ol style="list-style-type: none"> <li>a) spreading of information (disinformation or distortion of information), which discredit historical past of the state, its military and political authorities and armed forces, state technological abilities, its ability to resist military threats;</li> <li>b) spreading of distorted, false and biased information, which discredit national military structure, command authorities, activity of military formations and units, military service and military duty;</li> <li>c) appealing to the military authorities (military units staffs, command posts, control centers, special army objects of information activity) to act in a (malicious) way, which is profitable for the opposite side;</li> <li>d) incitement to socio-political, interethnic and anticonfessional conflicts among the state military formations personnel.</li> </ol>
8	<p>The same like in clause 7 – with the use of adversary of special military power and means of informational and psychological influence (subparagraphs a, b, c, d).</p>
9	<p>Conducting an adversary of information psychological pressure on military personnel through individual technical communication assets, and also family (friendly) ties.</p>
10	<p>Activity of foreign special services, particularly:</p> <ul style="list-style-type: none"> <li>- agent actions for compulsion to make decisions (activity), which are profitable for the adversary (threats, infusion, conviction, bribery, etc.);</li> <li>- hidden propaganda support of oppositional, ethnic and confessional anti-state movements.</li> </ul>
11	<p>Information activity of existed opposition movements, political parties, unions, blocks in order to involve military personnel to state political processes, particularly for support of separatism or changes of constitutional order (block-</p>

№	Types of information processes (actions, facts)
	ing of military units, horrification, incitement, accented appeals etc.).
12	Spreading by domestic mass media (public orientation, state, private) of products, which provoke aggravation of internal contradictions, society tensions and pacifism, neglect of national cultural and state values, which have negative influence on conscious (subconscious) of military personnel.
13	The same like in clause 12 – by blogosphere subjects and social networks.
14	Propaganda of hostile for the state national ideas through spreading scientific-popular and art films, journalistic materials, literature, texts of songs and arts, particularly of foreign origin.
15	Spreading of propaganda materials on a side of the opposite part in locations of the state military compounds.
16	Public display of inconsistency of views and actions of military-political authorities in crises.
17	Impartial spreading by national mass media, subjects of blogosphere and social networks of information about intents of domestic armed forces.
18	Intentional interference to the national TV and radio sources (switching off, setting of radio interruptions, networks blocking etc.).
19	Manifestations of peaceful resistance of civilians against actions of forces (troops) in the areas of fulfilling combat tasks (protest demonstrations or support of adversary side).
20	Manifestations of aggressive resistance of local civilians against actions of forces (troops) in the areas of fulfilling combat tasks (protest with the use of weapons).
21	Personal observations of military personnel of the results of combat actions: a) adversary losses; b) own losses.
22	Inconsistency of official information in the national mass media about real picture of combat actions.

\* *here and after including electronic media in the Internet and social networks*

\*\* *does not bordering with Ukraine*

Stage 2 fulfilled during the period  $\Delta T = 1$  year and involves:

- weight determination  $\alpha_i^*$  of information processes (actions, facts), significant in relation to the personnel of the Armed Forces of Ukraine in accordance to certain classification characteristics in Table 1 (totally 22 clauses and 17 subparagraphs);
- collection of statistic of negative information processes (actions, facts) in the state information space in relation of the personnel of the Armed Forces of Ukraine during the period  $\Delta T = 1$  year and its weight processing.

Different information processes (actions, facts) in the state information processes have unequal value to the effects of influence on the military target audience. It means that the quantitative measure  $\chi$  should have “weight background” of each of the components of the list, which display in the state information space during the time  $\Delta T$ . Therefore, the level weight of each type of destructive information processes (actions, facts) from the experts list (Table 1) is determined.

This operation is performed on the base of expert's poll of specialists by filling in the calculation matrix correspondingly (Table 2), where each j-expert evaluates threats (risks) of each i-destructive information process (action, fact)  $\alpha_{ij}$  on a big scale (from 0 to 100). The rightest column of the matrix defines an average value of experts statements  $\alpha_i^*$ ,  $i=1,n$ , which is accepted as "weight" of each taken in account destructive information processes (actions, facts), which can have consequences for morale and psychological conditions of forces.

**Table 2.** Calculation matrix of expert weight evaluation of destructive information processes (actions, facts)

$i \backslash j$	1	2	...	$j$	...	$m-1$	$m$	$\alpha_i^* = \frac{1}{m} \sum_j \alpha_{ij}$
1	$\alpha_{11}$	$\alpha_{12}$	...	$\alpha_{1j}$	...	$\alpha_{1,m-1}$	$\alpha_{1m}$	$\alpha_1^*$
2	$\alpha_{21}$	$\alpha_{22}$	...	$\alpha_{2j}$	...	$\alpha_{2,m-1}$	$\alpha_{2m}$	$\alpha_2^*$
...	...	...	...	...	...	...	...	...
$I$	$\alpha_{i1}$	$\alpha_{i2}$	...	$\alpha_{ij}$	...	$\alpha_{i,m-1}$	$\alpha_{im}$	$\alpha_i^*$
...	...	...	...	...	...	...	...	...
$n-1$	$\alpha_{n-1,1}$	$\alpha_{n-1,2}$	...	$\alpha_{n-1,j}$	...	$\alpha_{n-1,m-1}$	$\alpha_{n-1,m}$	$\alpha_{n-1}^*$
$n$	$\alpha_{n1}$	$\alpha_{n2}$	...	$\alpha_{nj}$	...	$\alpha_{nm-1}$	$\alpha_{nm}$	$\alpha_n^*$

$m$  – quantity of experts;

$n$  – quantity of destructive information processes (actions, facts), taken in account.

Because on the functional sights destructive information processes (actions, facts) are independent and their "weighed" intensity level during the period  $\Delta T$  can be defined by additive function as follows

$$\chi = \sum_i \alpha_i^* K_i ; \quad i = \overline{1, n} , \quad (2)$$

where  $K_i$  – quantity of display cases of i-destructive process (action, fact) during the time  $\Delta T$  in the state information space.

Formula (2) response to the task of definition of intensity level  $\chi$ .

Using the formula (2) and with taking into account Table 1 on the basis of expert's questionnaire was received the calculation matrix with a column of weight estimates  $\alpha_i^*$  (in terms of negative influence) on the scale from 0 to 100 of classification range of information processes (actions, facts), which described in the Table 3.

During the statistic getting period  $\Delta T = 1$  year (April 2014 – March 2015) received, processed and classified around 15000 information messages from the different sources the total weighted value approximately 1000000 points (as per formula (2)),



which is the measure of action of the total information process during the period  $\Delta T$  and corresponds to the basic formula (1).

With receiving of this quantity of points, there is the possibility of quantization of the criterion levels of intensity  $\chi_1, \dots, \chi_5$  (during the period  $\Delta T$ ) on the quantitative “weighted” sign, it means the solution of mentioned above third task.

**Table 3.** Matrix of weight estimates of classification range

№ position in classification range	Average	№ position in classification range	Average $\alpha_i^*$
1	40	8c)	65
2	57	8d)	62
3a)	59	9	68
3b)	40	10a)	62
3c)	28	10b)	52
4a)	28	11	54
4b)	48	12	54
4c)	36	13	57
4d)	61	14	56
5	48	15	46
6	66	16	61
7a)	60	17	56
7b)	59	18	54
7c)	58	19	72
7d)	57	20	72
8a)	66	21a)	55
8b)	64	21b)	78
		22	77

**Table 4.** Criterion matrix

$j$ $s$	1	2	...	$j$	...	$m - 1$	$m$
1	$\chi_{11}$	$\chi_{12}$	...	$\chi_{1j}$	...	$\chi_{1,m-1}$	$\chi_{1m}$
2	$\chi_{21}$	$\chi_{22}$	...	$\chi_{2j}$	...	$\chi_{2,m-1}$	$\chi_{2m}$
3	$\chi_{31}$	$\chi_{32}$	...	$\chi_{3j}$	...	$\chi_{3,m-1}$	$\chi_{3m}$
4	$\chi_{41}$	$\chi_{42}$	...	$\chi_{4j}$	...	$\chi_{4,m-1}$	$\chi_{4m}$
5	$\chi_{51}$	$\chi_{52}$	...	$\chi_{5j}$	...	$\chi_{5,m-1}$	$\chi_{5m}$

Stage 3 – determination of criterion levels of intensity  $\chi_1, \dots, \chi_5$  (during the period  $\Delta T$ ).

Independent analysis of the consequences of destructive information processes (actions, facts) during the period  $\Delta T$  allows to identify individual (expert) values of criteria of quantization of the levels of destructiveness of the general information process  $\chi_1, \dots, \chi_5$ , which are entered in the criterion matrix (table 4). Statements of  $m$  experts, which entered to the criterion matrix, could be averaged for each of the five criteria (fig.1).

$$\chi_s^* = \frac{1}{m} \sum_j \chi_{sj} ; s = \overline{1, 5}, \quad (3)$$

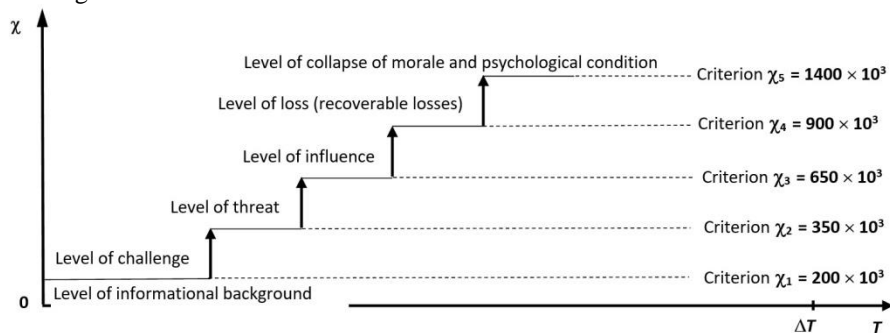
which are fundamental for determination of intensity level of the general destructive information process and, therefore, the level of its negative significance in relation to the object of influence (military personnel).

To get a criterion matrix (table 4) experts are asked to submit a questionnaire with two questions as follows:

1. What, in your point of view, is the level of influence on the military personnel, according to your personal evaluation of morale and psychological condition of the personnel of the Armed Forces of Ukraine during the period ( $\Delta T = 1$  year: April 2014 – March 2015), which corresponds to received points sum 1000000 (provide your own variant of decision)?
2. Up to you, what quantity of evaluation points, that received during the observation period  $\Delta T = 1$  year, should correspond quantum levels, if you are defined in the 1<sup>st</sup> question the level, which corresponds to the value of 1000000 points (mark each level with a digit)?

The first question of this questionnaire allowed experts to install own reference point on the intensity scale  $\chi$ , in respect to which by expert's answer on the second question was obtained data for the criterion matrix (Table 4).

On the basis of received data of criterion matrix (Table 4) by statistical processing (formula (3)) criteria  $\chi_1, \dots, \chi_5$  are obtained, which quantify the ranges of location of partial indicators of evaluation of the level of negative informational and psychological influence on the military personnel for a period of one year. This final result is demonstrated on the fig.2



**Fig. 2.** Quantified levels of intensity of general destructive information process (during the period  $\Delta T=1$  year)

This result answers the question about determination of quantum levels of evaluation of partial indicators of the level of influence.

The above-mentioned preliminary actions provide the theoretical basis for implementation of the methodology of detecting and evaluation of the level of negative informational and psychological influence on the military personnel, which is now quite easily can be implemented by procedure of scaling in an observation period, it means by getting statistic of information processes and their processing nor during the period  $\Delta T = 1$  year, but for a much shorter period  $\Delta t$  ( $\Delta t \ll \Delta T$ ), for example during a month of a week, via implementation of the algorithm:

$$\chi_s = \chi \frac{\Delta T}{\Delta t}, \quad i = \overline{1,5}, \quad (4)$$

where intensity  $\chi$  is calculated during the period  $\Delta t \ll \Delta T$ .

For example, if during  $\Delta t = 1$  week received points quantity is 3000, then, using formula (4) we can get:

$$\chi_s = 3000 \times 365 / 7 \approx 156,5 \times 10^3 \text{ (points)}.$$

Such quantity of points demonstrates that the level of negative informational and psychological influence during 1 week is located in the frame of information background (see fig.2) and actually does not affect the decrease of morale and psychological condition of military personnel.

However, if during  $\Delta t = 1$  week was received 13500 points, then using formula (4) we have:

$$\chi_s = 13500 \times 365 / 7 \approx 704 \times 10^3 \text{ (points)}.$$

In this case, the level of negative informational and psychological influence is located in the frame of influence display (see fig.2), where moral and psychological condition of the military personnel begins to deteriorate. Therefore, only in this range of values of indicator  $\chi_s$  and higher, the fact of detection of negative influence is fixed (by sign of morale and psychological condition of forces).

## 4 Conclusions

Application of described above theoretical approach allows to implement the methodology, which gives an opportunity to evaluate in a quantitative measure the level of informational and psychological influence on the military personnel during certain period of time. This allows to respective body of military management relatively objectively predict possible effects and react (counteract) in advance and adequate against negative processes. That is why, this methodology has to be in use as an integral part of the subsystem of situation monitoring in the general frame of the system

of counteraction against negative informational and psychological influence on the military personnel, particularly of the Armed Forces of Ukraine – the main controlling mechanism of the process of the level of morale and psychological condition of troops stabilization.

Proposed methodological approach has a universal character, therefore it can be used while creation of similar methodological tools not only in the military sphere, but also in the whole state social system or its separate sectors in the interest of internal political stability support.

Further researches are foreseen the process of verification of developed methodology and also substantiation of proposals on how to implement it to the practice in the chain of command of the Ministry of defence and of the Armed Forces of Ukraine.

## References

1. Hryshchuk, R.V. Danyk, Yu.H.: *Osnovy kibernetichnoi bezpeky: monohrafiia*” [Fundamentals of cybernetic security: monograph], ZhNAEU, Zhytomyr, 636 p. (2016).
2. Kornev, M.: *Social psychology: handbook*. Kyiv, 304 p. (1995).
3. Taras, A.: *Information-psychological and psychotronic warfare: textbook*. Minsk: Harvest, 432 p. (2003).
4. Dziuba, M., Onyshuk, M.: Some aspects of counteraction to negative informational and psychological influence during peacekeeping missions of units of the Armed Forces of Ukraine. Kyiv, Military Institute of Kyiv National University, p.25-28 (2006).
5. Kolesnikov, A.: Information security of forces and protection of personnel against negative information-psychological influence. *Orientyr* (2007). [http://group32441.narod.ru/files/ogp/001\\_oporn\\_konspekt/2007/2007-10-3.html](http://group32441.narod.ru/files/ogp/001_oporn_konspekt/2007/2007-10-3.html).
6. Gorbulun, V., Bychenok, M.: *Problems of Ukrainian information space defence: monography*. Kyiv, Intertehnologiya, 136 p. (2009).
7. Sydorin, A., Mygnatin, G., Pryshepov, V., Akulenko, V.: *Armed Forces of foreign countries: information-analytical compilation*. Moscow, Voenizdat, 528 p. (2009).
8. Gubanov, D., Novikov, D., Ckhartyshvili, A.: *Social networks: models of information influence, control and confrontation*. Moscow, Phyzmalyt, 228 p. (2010).
9. Duz-Kriatchenko, O., Dziuba, T., Ros, A.: *Fundamentals of the National Security and Defense Strategy: handbook*. Second edition, supplemented and corrected, Kyiv, National Defence University of Ukraine, 591 p. (2010).
10. Stasiuk, V.: *Morale and psychological support of the Armed Forces of Ukraine: handbook*. Part 1, Kyiv, National Defence University of Ukraine, 464 p. (2010).
11. Hryshchuk, R., Molodetska, K.: Synergetic control of social networking services actors’ interactions. *Recent Advances in Systems, Control and Information Technology*, Springer International Publishing AG, 45, P. 34–42 (2017).