GEORGIAN MEDICAL NEWS

ISSN 1512-0112

NO 10 (343) Октябрь 2023

ТБИЛИСИ - NEW YORK

ЕЖЕМЕСЯЧНЫЙ НАУЧНЫЙ ЖУРНАЛ

Медицинские новости Грузии

საქართველოს სამედიცინო სიახლენი

GEORGIAN MEDICAL NEWS

Monthly Georgia-US joint scientific journal published both in electronic and paper formats of the Agency of Medical Information of the Georgian Association of Business Press. Published since 1994. Distributed in NIS, EU and USA.

GMN: Georgian Medical News is peer-reviewed, published monthly journal committed to promoting the science and art of medicine and the betterment of public health, published by the GMN Editorial Board since 1994. GMN carries original scientific articles on medicine, biology and pharmacy, which are of experimental, theoretical and practical character; publishes original research, reviews, commentaries, editorials, essays, medical news, and correspondence in English and Russian.

GMN is indexed in MEDLINE, SCOPUS, PubMed and VINITI Russian Academy of Sciences. The full text content is available through EBSCO databases.

GMN: Медицинские новости Грузии - ежемесячный рецензируемый научный журнал, издаётся Редакционной коллегией с 1994 года на русском и английском языках в целях поддержки медицинской науки и улучшения здравоохранения. В журнале публикуются оригинальные научные статьи в области медицины, биологии и фармации, статьи обзорного характера, научные сообщения, новости медицины и здравоохранения. Журнал индексируется в MEDLINE, отражён в базе данных SCOPUS, PubMed и ВИНИТИ РАН. Полнотекстовые статьи журнала доступны через БД EBSCO.

GMN: Georgian Medical News – საქართველოს სამედიცინო სიახლენი – არის ყოველთვიური სამეცნიერო სამედიცინო რეცენზირებადი ჟურნალი, გამოიცემა 1994 წლიდან, წარმოადგენს სარედაქციო კოლეგიისა და აშშ-ის მეცნიერების, განათლების, ინდუსტრიის, ხელოვნებისა და ბუნებისმეტყველების საერთაშორისო აკადემიის ერთობლივ გამოცემას. GMN-ში რუსულ და ინგლისურ ენებზე ქვეყნდება ექსპერიმენტული, თეორიული და პრაქტიკული ხასიათის ორიგინალური სამეცნიერო სტატიები მედიცინის, ბიოლოგიისა და ფარმაციის სფეროში, მიმოხილვითი ხასიათის სტატიები.

ჟურნალი ინდექსირებულია MEDLINE-ის საერთაშორისო სისტემაში, ასახულია SCOPUS-ის, PubMed-ის და ВИНИТИ РАН-ის მონაცემთა ბაზებში. სტატიების სრული ტექსტი ხელმისაწვდომია EBSCO-ს მონაცემთა ბაზებიდან.

WEBSITE

www.geomednews.com

К СВЕДЕНИЮ АВТОРОВ!

При направлении статьи в редакцию необходимо соблюдать следующие правила:

1. Статья должна быть представлена в двух экземплярах, на русском или английском языках, напечатанная через **полтора интервала на одной стороне стандартного листа с шириной левого поля в три сантиметра**. Используемый компьютерный шрифт для текста на русском и английском языках - **Times New Roman** (**Кириллица**), для текста на грузинском языке следует использовать **AcadNusx.** Размер шрифта - **12**. К рукописи, напечатанной на компьютере, должен быть приложен CD со статьей.

2. Размер статьи должен быть не менее десяти и не более двадцати страниц машинописи, включая указатель литературы и резюме на английском, русском и грузинском языках.

3. В статье должны быть освещены актуальность данного материала, методы и результаты исследования и их обсуждение.

При представлении в печать научных экспериментальных работ авторы должны указывать вид и количество экспериментальных животных, применявшиеся методы обезболивания и усыпления (в ходе острых опытов).

4. К статье должны быть приложены краткое (на полстраницы) резюме на английском, русском и грузинском языках (включающее следующие разделы: цель исследования, материал и методы, результаты и заключение) и список ключевых слов (key words).

5. Таблицы необходимо представлять в печатной форме. Фотокопии не принимаются. **Все цифровые, итоговые и процентные данные в таблицах должны соответствовать таковым в тексте статьи**. Таблицы и графики должны быть озаглавлены.

6. Фотографии должны быть контрастными, фотокопии с рентгенограмм - в позитивном изображении. Рисунки, чертежи и диаграммы следует озаглавить, пронумеровать и вставить в соответствующее место текста **в tiff формате**.

В подписях к микрофотографиям следует указывать степень увеличения через окуляр или объектив и метод окраски или импрегнации срезов.

7. Фамилии отечественных авторов приводятся в оригинальной транскрипции.

8. При оформлении и направлении статей в журнал МНГ просим авторов соблюдать правила, изложенные в «Единых требованиях к рукописям, представляемым в биомедицинские журналы», принятых Международным комитетом редакторов медицинских журналов - http://www.spinesurgery.ru/files/publish.pdf и http://www.nlm.nih.gov/bsd/uniform_requirements.html
В конце каждой оригинальной статьи приводится библиографический список. В список литературы включаются все материалы, на которые имеются ссылки в тексте. Список составляется в алфавитном порядке и нумеруется. Литературный источник приводится на языке оригинала. В списке литературы сначала приводятся работы, написанные знаками грузинского алфавита, затем кириллицей и латиницей. Ссылки на цитируемые работы в тексте статьи даются в квадратных скобках в виде номера, соответствующего номеру данной работы в списке литературы. Большинство цитированных источников должны быть за последние 5-7 лет.

9. Для получения права на публикацию статья должна иметь от руководителя работы или учреждения визу и сопроводительное отношение, написанные или напечатанные на бланке и заверенные подписью и печатью.

10. В конце статьи должны быть подписи всех авторов, полностью приведены их фамилии, имена и отчества, указаны служебный и домашний номера телефонов и адреса или иные координаты. Количество авторов (соавторов) не должно превышать пяти человек.

11. Редакция оставляет за собой право сокращать и исправлять статьи. Корректура авторам не высылается, вся работа и сверка проводится по авторскому оригиналу.

12. Недопустимо направление в редакцию работ, представленных к печати в иных издательствах или опубликованных в других изданиях.

При нарушении указанных правил статьи не рассматриваются.

REQUIREMENTS

Please note, materials submitted to the Editorial Office Staff are supposed to meet the following requirements:

1. Articles must be provided with a double copy, in English or Russian languages and typed or compu-ter-printed on a single side of standard typing paper, with the left margin of **3** centimeters width, and **1.5** spacing between the lines, typeface - **Times New Roman** (**Cyrillic**), print size - **12** (referring to Georgian and Russian materials). With computer-printed texts please enclose a CD carrying the same file titled with Latin symbols.

2. Size of the article, including index and resume in English, Russian and Georgian languages must be at least 10 pages and not exceed the limit of 20 pages of typed or computer-printed text.

3. Submitted material must include a coverage of a topical subject, research methods, results, and review.

Authors of the scientific-research works must indicate the number of experimental biological species drawn in, list the employed methods of anesthetization and soporific means used during acute tests.

4. Articles must have a short (half page) abstract in English, Russian and Georgian (including the following sections: aim of study, material and methods, results and conclusions) and a list of key words.

5. Tables must be presented in an original typed or computer-printed form, instead of a photocopied version. **Numbers, totals, percentile data on the tables must coincide with those in the texts of the articles.** Tables and graphs must be headed.

6. Photographs are required to be contrasted and must be submitted with doubles. Please number each photograph with a pencil on its back, indicate author's name, title of the article (short version), and mark out its top and bottom parts. Drawings must be accurate, drafts and diagrams drawn in Indian ink (or black ink). Photocopies of the X-ray photographs must be presented in a positive image in **tiff format**.

Accurately numbered subtitles for each illustration must be listed on a separate sheet of paper. In the subtitles for the microphotographs please indicate the ocular and objective lens magnification power, method of coloring or impregnation of the microscopic sections (preparations).

7. Please indicate last names, first and middle initials of the native authors, present names and initials of the foreign authors in the transcription of the original language, enclose in parenthesis corresponding number under which the author is listed in the reference materials.

8. Please follow guidance offered to authors by The International Committee of Medical Journal Editors guidance in its Uniform Requirements for Manuscripts Submitted to Biomedical Journals publication available online at: http://www.nlm.nih.gov/bsd/uniform_requirements.html
http://www.icmje.org/urm_full.pdf
In GMN style for each work cited in the text, a bibliographic reference is given, and this is located at the end of the article under the title "References". All references cited in the text must be listed. The list of references should be arranged alphabetically and then numbered. References are numbered in the text [numbers in square brackets] and in the reference list and numbers are repeated throughout the text as needed. The bibliographic description is given in the language of publication (citations in Georgian script are followed by Cyrillic and Latin).

9. To obtain the rights of publication articles must be accompanied by a visa from the project instructor or the establishment, where the work has been performed, and a reference letter, both written or typed on a special signed form, certified by a stamp or a seal.

10. Articles must be signed by all of the authors at the end, and they must be provided with a list of full names, office and home phone numbers and addresses or other non-office locations where the authors could be reached. The number of the authors (co-authors) must not exceed the limit of 5 people.

11. Editorial Staff reserves the rights to cut down in size and correct the articles. Proof-sheets are not sent out to the authors. The entire editorial and collation work is performed according to the author's original text.

12. Sending in the works that have already been assigned to the press by other Editorial Staffs or have been printed by other publishers is not permissible.

Articles that Fail to Meet the Aforementioned Requirements are not Assigned to be Reviewed.

ავტორთა საყურადღებოდ!

რედაქციაში სტატიის წარმოდგენისას საჭიროა დავიცვათ შემდეგი წესები:

1. სტატია უნდა წარმოადგინოთ 2 ცალად, რუსულ ან ინგლისურ ენებზე,დაბეჭდილი სტანდარტული ფურცლის 1 გვერდზე, 3 სმ სიგანის მარცხენა ველისა და სტრიქონებს შორის 1,5 ინტერვალის დაცვით. გამოყენებული კომპიუტერული შრიფტი რუსულ და ინგლისურენოვან ტექსტებში - **Times New Roman (Кириллица)**, ხოლო ქართულენოვან ტექსტში საჭიროა გამოვიყენოთ **AcadNusx.** შრიფტის ზომა – 12. სტატიას თან უნდა ახლდეს CD სტატიით.

2. სტატიის მოცულობა არ უნდა შეადგენდეს 10 გვერდზე ნაკლებს და 20 გვერდზე მეტს ლიტერატურის სიის და რეზიუმეების (ინგლისურ, რუსულ და ქართულ ენებზე) ჩათვლით.

3. სტატიაში საჭიროა გაშუქდეს: საკითხის აქტუალობა; კვლევის მიზანი; საკვლევი მასალა და გამოყენებული მეთოდები; მიღებული შედეგები და მათი განსჯა. ექსპერიმენტული ხასიათის სტატიების წარმოდგენისას ავტორებმა უნდა მიუთითონ საექსპერიმენტო ცხოველების სახეობა და რაოდენობა; გაუტკივარებისა და დაძინების მეთოდები (მწვავე ცდების პირობებში).

4. სტატიას თან უნდა ახლდეს რეზიუმე ინგლისურ, რუსულ და ქართულ ენებზე არანაკლებ ნახევარი გვერდის მოცულობისა (სათაურის, ავტორების, დაწესებულების მითითებით და უნდა შეიცავდეს შემდეგ განყოფილებებს: მიზანი, მასალა და მეთოდები, შედეგები და დასკვნები; ტექსტუალური ნაწილი არ უნდა იყოს 15 სტრიქონზე ნაკლები) და საკვანძო სიტყვების ჩამონათვალი (key words).

5. ცხრილები საჭიროა წარმოადგინოთ ნაბეჭდი სახით. ყველა ციფრული, შემაჯამებელი და პროცენტული მონაცემები უნდა შეესაბამებოდეს ტექსტში მოყვანილს.

6. ფოტოსურათები უნდა იყოს კონტრასტული; სურათები, ნახაზები, დიაგრამები - დასათაურებული, დანომრილი და სათანადო ადგილას ჩასმული. რენტგენოგრამების ფოტოასლები წარმოადგინეთ პოზიტიური გამოსახულებით **tiff** ფორმატში. მიკროფოტოსურათების წარწერებში საჭიროა მიუთითოთ ოკულარის ან ობიექტივის საშუალებით გადიდების ხარისხი, ანათალების შეღებვის ან იმპრეგნაციის მეთოდი და აღნიშნოთ სურათის ზედა და ქვედა ნაწილები.

7. სამამულო ავტორების გვარები სტატიაში აღინიშნება ინიციალების თანდართვით, უცხოურისა – უცხოური ტრანსკრიპციით.

8. სტატიას თან უნდა ახლდეს ავტორის მიერ გამოყენებული სამამულო და უცხოური შრომების ბიბლიოგრაფიული სია (ბოლო 5-8 წლის სიღრმით). ანბანური წყობით წარმოდგენილ ბიბლიოგრაფიულ სიაში მიუთითეთ ჯერ სამამულო, შემდეგ უცხოელი ავტორები (გვარი, ინიციალები, სტატიის სათაური, ჟურნალის დასახელება, გამოცემის ადგილი, წელი, ჟურნალის №, პირველი და ბოლო გვერდები). მონოგრაფიის შემთხვევაში მიუთითეთ გამოცემის წელი, ადგილი და გვერდების საერთო რაოდენობა. ტექსტში კვადრატულ ფჩხილებში უნდა მიუთითოთ ავტორის შესაბამისი N ლიტერატურის სიის მიხედვით. მიზანშეწონილია, რომ ციტირებული წყაროების უმეტესი ნაწილი იყოს 5-6 წლის სიღრმის.

9. სტატიას თან უნდა ახლდეს: ა) დაწესებულების ან სამეცნიერო ხელმძღვანელის წარდგინება, დამოწმებული ხელმოწერითა და ბეჭდით; ბ) დარგის სპეციალისტის დამოწმებული რეცენზია, რომელშიც მითითებული იქნება საკითხის აქტუალობა, მასალის საკმაობა, მეთოდის სანდოობა, შედეგების სამეცნიერო-პრაქტიკული მნიშვნელობა.

10. სტატიის ბოლოს საჭიროა ყველა ავტორის ხელმოწერა, რომელთა რაოდენობა არ უნდა აღემატებოდეს 5-ს.

11. რედაქცია იტოვებს უფლებას შეასწოროს სტატია. ტექსტზე მუშაობა და შეჯერება ხდება საავტორო ორიგინალის მიხედვით.

12. დაუშვებელია რედაქციაში ისეთი სტატიის წარდგენა, რომელიც დასაბეჭდად წარდგენილი იყო სხვა რედაქციაში ან გამოქვეყნებული იყო სხვა გამოცემებში.

აღნიშნული წესების დარღვევის შემთხვევაში სტატიები არ განიხილება.

GEORGIAN MEDICAL NEWS
No 10 (343) 2023

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ON THE RESULTS OF A SYSTEMIC MULTIFACTOR ANALYSIS WITH MATHEMATICAL MODELING OF THE INDICATORS OF MEDICAL EXPERTISE OF YOUNG MALES WITH SURGICAL DISEASES IN THE REPUBLIC OF ARMENIA

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Abstract.

Medical aspects of the organization of replenishment of the Armed Forces with healthy and physically strong personnel are of great importance, and the deficit in the number of conscripts and their low-quality condition have become one of the main and important problems for the Armed Forces.

The aim of the study was to improve the medical care of male conscripts aged 18-27 years by revealing the regularities and peculiarities of the expert assessment of surgical diseases among this category of young men on the basis of mathematical modeling.

The object of the research was the study of the names of surgical profile articles, according to which these people were recognized as unfit or restricted fit for service, and the results of military medical expertise. Descriptive, social, and statistical methods were applied in the course of the study. The final stage was to conduct a systemic multifactor analysis in order to obtain a mathematical model of the process under study.

The values of the influence coefficients of the mentioned indicators for 2013-2019 on the obtained mathematical models from the point of view of military-medical expertise of young men with surgical diseases both in the Republic of Armenia as a whole and in its separate regions are presented.

Summarizing, it can be stated that from the point of view of military-medical expertise of young men with surgical diseases it is impossible to consider Yerevan city and the regions of RA as separate parts of the Republic of Armenia. Yerevan and the regions of the Republic of Armenia as separate parts, as they appear as a single whole according to the results of systemic multifactor analysis with mathematical modeling.

Key words. Military medical expertise, surgical diseases, system multifactor analysis, mathematical modeling.

Introduction.

A study of literature data shows that there are a number of problems related to health conditions and physical development of the number of people in countries, in which it is carried out compulsory conscription [1].

Reliable provision of military security of the Republic of Armenia objectively requires solving the tasks of replenishing the Armed Forces with sufficient numbers of personnel of appropriate quality. In the current demographic situation in the Republic of Armenia, replenishing the army with healthy and physically strong people is one of the most important tasks facing the state [2].

Replenishing the armed forces of the Republic of Armenia with healthy and physically robust frames has become a very contemporary problem, has risen to the state level, and the deficit of headcount of conscripts and their low-quality condition have become one of the basically and most important problems for the Armed Forces [3].

It should be noted that this is facilitated by the low efficiency activities of primary health care, lack of personnel, insufficient availability of services in the specialized healthcare system, etc. Over the past decades, there is a certain decline in the standard of living of the population of the Republic of Armenia. In the specified context, the health status of persons of conscription age is the most important criterion for assessing the effectiveness provision of medical care in preparing young people for conscription for military service, the assessment tool in which acts as military medical expertise [3-5].

Medicine of the future is unthinkable without the use of modern information technology and mathematical models, which are necessary in various fundamental scientific research. Medical workers are subject to very high demands, and not only the qualifications of doctors are important, but also their capability to apply modern technologies in practice, in particular, the use of certain mathematical models in their activities [6].

Mathematical modeling successfully used to solve multiform and important problems from various fields, both practical and scientific [7].

It is generally accepted that the total quantity of information about diseases increases every year, and one person is not able to accurately assess the importance of the available material for medical practice and the choice of certain mathematical models when describing and researching objects depends on the individual knowledge of the specialist and on the characteristics of the problems being solved [8].

According to the literature [9,10], the general task of governance in healthcare involves, first of all, the development and application of some management "tool," which is totality of mathematical models that describe the process of functioning of the organization. In modern conditions, when developing mathematical models of complex systems, the principles of the systems approach are widely used, among which the main ones are: the principle of unity: joint consideration of the system as a whole and as a set of elements from the perspective of realizing a common goal; principle of coherence: consideration, as a rule, quantitatively, of any part together with its connections with the environment; a structural description of the system, built for most cases according to a hierarchical principle.

Based on the above, this study was conducted.

The purpose of this study was an improvement the organization of medical aspects of the replenishment of the Armed Forces of the Republic of Armenia based on its mathematical modeling.

Materials and Methods.

To carry out the work, by ourselves have been applied historical, descriptive, social and statistical methods.

The objects of the study appeared all young men with surgical diseases aged 18-27 years. Their military medical expertise was carried out in accordance with the Decree of the Government of the Republic of Armenia No. 404 of April 12, 2018, under twenty-six /26/ articles. The analysis showed that of these 26 articles, five titles, namely 36th (diseases of the spine and chest, malformations, consequences of injuries and diseases), 38th (chronic birth defects of bones, cartilage, muscles, tendons and joints, injuries , their consequences and chronic diseases), 43rd (foot deformity), 47th (benign neoplasms) and 54th (diseases of the genitourinary system, malformations, injuries or consequences of surgical interventions), are of practically decisive importance from the point of view of military medical expertise, while a rather motley picture is fixed both in terms by reliable increase and diminishing in their values.

Based on the distribution of cases, we divided all the material into 6 groups, the last group included conclusions of examination for the other 21 articles, taking into account that individually they could not have any influence on the results of the military medical examination.

The data was considered for 2013-2019 years by individual periods, age groups (18-21, 21-24 and 24-27 years), administrative - structural units of the Republic of Armenia (city of Yerevan and 10 regions), having carried them through the prism of military medical expert solutions regarding availability of surgical diseases. Their analysis showed that the whole picture is quite motley and contradictory, it is difficult to draw generalizing conclusions, one gets the impression, that establishing any patterns and features is awkwardly.

We are convinced that the process of emergence, formation and development of surgical diseases in the given category young men are multifaceted, that in Republic in Armenia this whole path is under the influence by many different known and unknown factors. Therefore, their accounting and study is a prerequisite for a full understanding of the results of expert decisions regarding their fitness for service.

The final stage of this work was to carry out a systemic multifactor analysis in order to obtain a mathematical model of the process under study [9], with the hel p of which the real picture was clarified and in which direction it is necessary to concentrate the available, not so rich, forces and means, proceeding from the magnitude of the value of the coefficient of influence of various factors in the model itself.

The basis of the analysis is based on computation of generalized (integral) indicators by received according to the results of the study one-off parameters on various deadlines, periods, or depending on the stages of development of the process, etc. For this purpose, multidimensional quantitative characteristics, with incomparable absolute values were converted into comparable ones by calculating the relative differences $\tilde{O}_j$ of each of the parameters after statistical processing and normalized, i.e. accepted as the norm of parameters $\overline{X}_0$.

$$\hat{X}_j = \frac{\overline{X}_j - \overline{X}_0}{\overline{X}_0}$$

The degree of influence of single indicators on the process under investigation was assessed by a weighting coefficient (influence coefficient).

$P_i = \frac{\alpha}{\sigma_j^2}$, where:

α – constant multiplier chosen for convenience of scale

σ_j - mean-square deviation of the value $\hat{x}_j$, in relative units, calculated by the formula:

$$\sigma_j = \pm\sqrt{\left[\frac{S_i^2(n_i-1)}{S_0^2(n_0-1)}+1\right]\frac{1}{(n_i+n_0)(n_i+n_0-2)}}$$, where

S_i^2 - dispersion of the parameter under study $\overline{X}_i$;

n_i - number of observations when determining $\overline{X}_i$;

S_0^2 - dispersion of the parameter under study $\overline{X}_0$;

n_0 - - number of observations when determining $\overline{X}_0$.

According to the data received, calculated the weighted average $\hat{X}_{Bi}$ for each group of parameters - a value that integrally characterizes the process under study in a given time period (in relative units):

$$\hat{X}_{Bi} = \frac{\sum_{i=1}^{n} P_i \hat{X}_j}{\sum_{i=1}^{n} P_j}$$

Based on the calculation results, a graphical dependence of the weighted averages on time, period or other specified factors was constructed.

According to received graphic dependence, an analytical expression was selected. The graphical dependence, as well as its analytical description, was an integral (generalized) mathematical model of the process being studied. The resulting models made it possible to assess the dynamics of the process under study, his character, and to determine the importance of individual parameters in ensuring the life of both an individual system and as a whole.

We accepted as factors: the indicator of possible replenishment of the Armed Forces, persons who underwent a military medical expertise, as well as young men declared unfit due to the presence of surgical diseases.

Results and Discussion.

A generalization of the study of the dynamics and structure of the examination of persons aged 18-27 years male with surgical diseases, the results of their examination, which we have already conducted, makes it possible to conclude that the detected variations go beyond ordinary concepts.

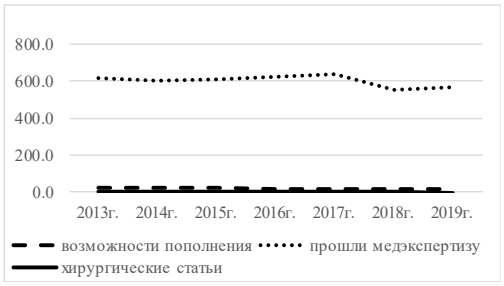
Based on the foregoing, in order to understand the basis of the difficulties in resolving medical problems of replenishing the armed forces, we carried out a systemic multifactor analysis in order to obtain a mathematical model of the process under study, with which it was determined the magnitude of the influence coefficient of a specific factor.

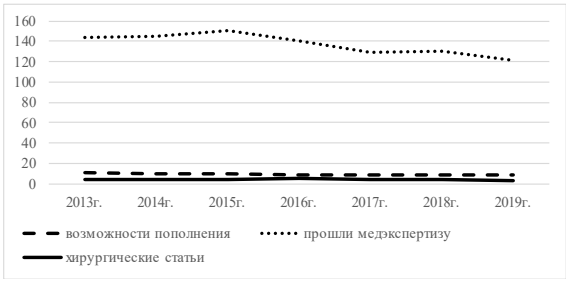
Analysis of Figure 1 shows that :

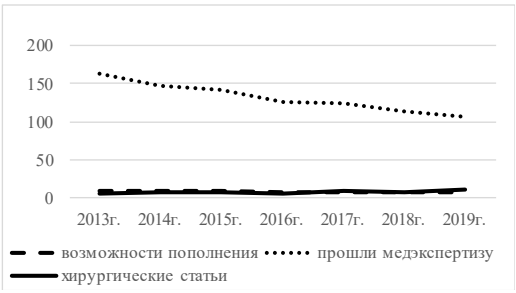
• the situation with indicators of possible replenishment and expert opinions on the health status of the examined contingent is characterized by a certain stability, i.e. they did not undergo any special changes over the entire study period

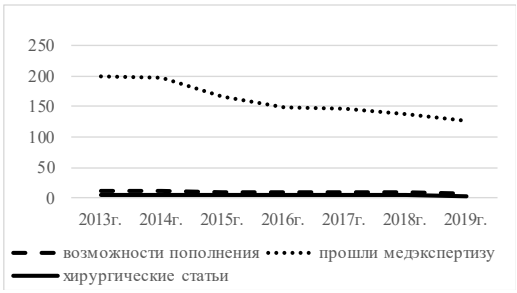
• the entire process in relation to persons undergoing military medical expertise for the period 2013-2019 years was unstable, had an uneven course in different regions of the Republic of Armenia, more often manifested itself in the form of a decline

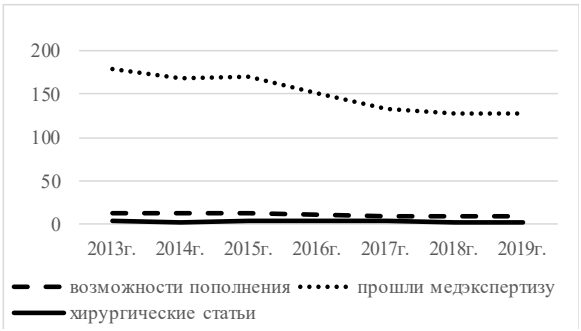
Figure 1. *Graphic images of the mathematical model of a systemic multifactorial analysis of the possibility of replenishment and medical expertise of young male persons with surgical diseases according to individual articles.*

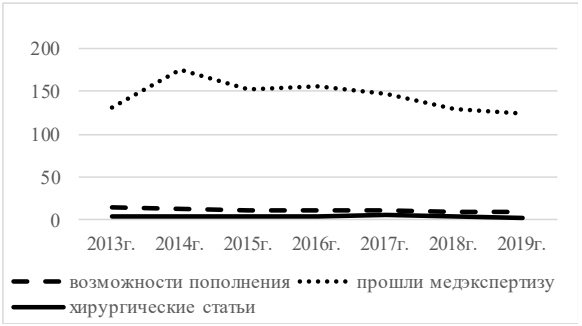


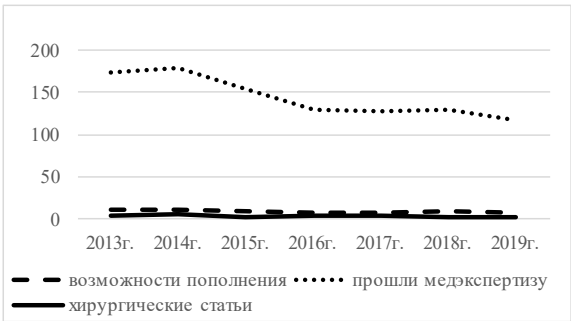


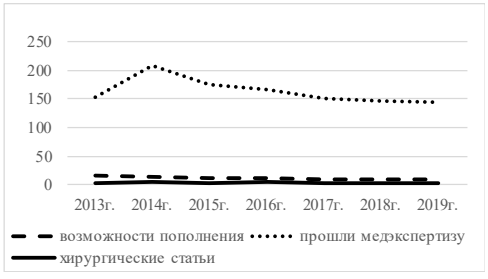












1. Republic of Armenia
2. Yerevan
3. Ararat
4. Armavir
5. Aragatsotn
6. Gegharkunik
7. Lori
8. Kotayk
9. Shirak

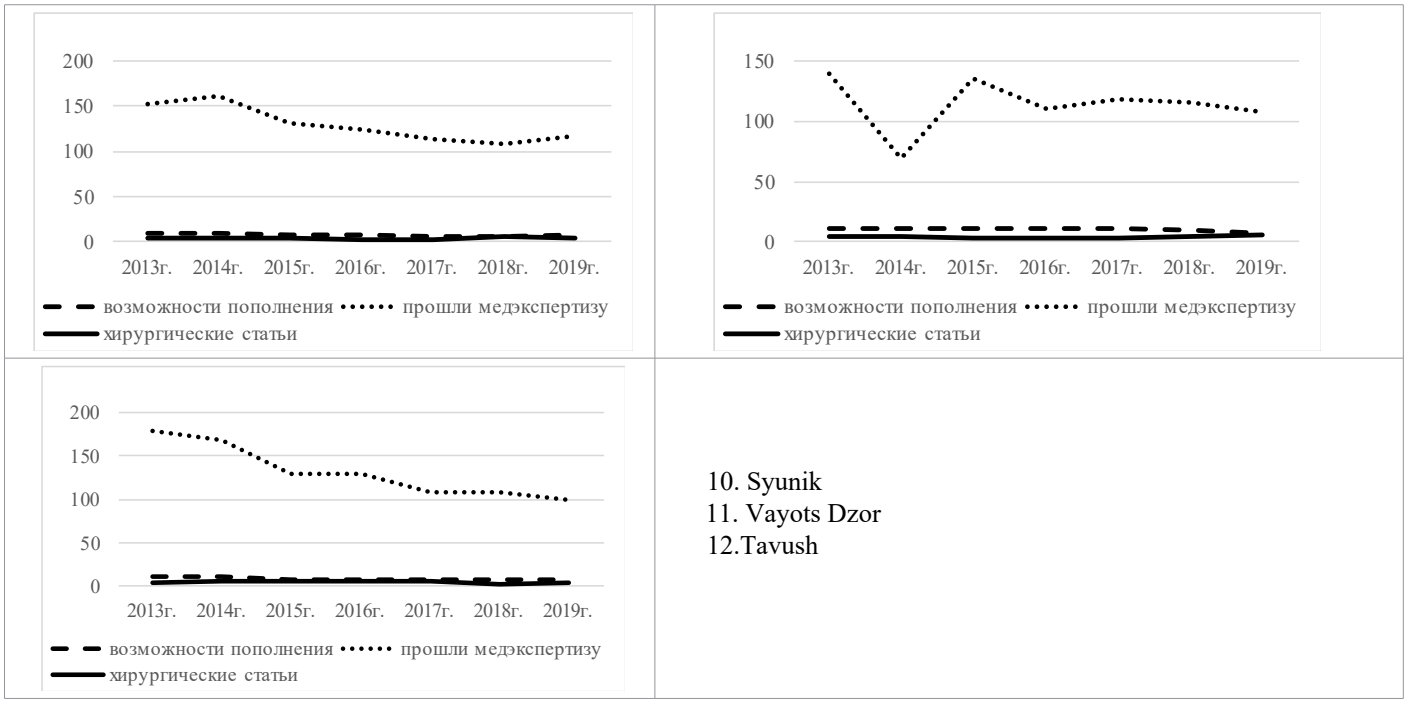


Table 1. *The magnitude of the influence coefficient on the scale of the Republic of Armenia and individual regions for the indicator of the possibility of replenishment in the mathematical model and medical expertise for 2013-2019.*

Years	Indicators of the possibility of replenishment on the scale of the Republic of Armenia and individual regions											
	On the scale of the Republic of Armenia	**Yerevan**	**Ararat**	**Armavir**	**Aragatsotn**	**Gegharkunik**	**Lori**	**Kotayk**	**Shirak**	**Syunik**	**Vayots Dzor**	**Tavush**
2013 y.	59.17	100.0	25.0	22.68	10.41	17.36	16.0	22.68	16.0	16.0	4.53	11.11
2014 y.	59.17	100.0	27.7	22.68	10.41	18.9	17.36	22.68	17.36	14.79	4.53	11.89
2015 y.	69.44	123.46	27.7	25.0	10.41	18.9	18.9	25.0	20.66	18.9	4.53	14.79
2016 y.	69.44	123.46	30.86	27.7	9.77	20.66	18.9	30.86	20.66	18.9	4.53	14.79
2017 y.	82.64	123.46	30.86	27.7	11.11	22.68	18.9	30.86	22.68	20.66	4.94	17.36
2018 y.	82.64	123.46	34.6	30.86	11.89	22.68	20.66	27.7	22.68	20.66	4.94	16.0
2019 y.	82.64	123.46	34.6	34.6	12.76	22.68	22.68	30.86	22.68	18.9	6.57	17.36
Pearson's criterion		**0.8**	**0.9**	**0.9**	**0.7**	**0.9**	**0.8**	**0.8**	**1.0**	**0.9**	**0.6**	**1.0**
	Medical expertise data											
2013 y.	0.153	0.1	0.018	0.021	0.013	0.024	0.028	0.022	0.028	0.009	0.005	0.011
2014 y.	0.146	0.088	0.019	0.022	0.015	0.021	0.024	0.021	0.024	0.009	0.006	0.01
2015 y.	0.130	0.082	0.018	0.021	0.014	0.024	0.024	0.018	0.021	0.007	0.005	0.008
2016 y.	0.122	0.080	0.017	0.02	0.014	0.021	0.021	0.016	0.02	0.008	0.006	0.007
2017 y.	0.114	0.075	0.017	0.019	0.017	0.019	0.021	0.016	0.018	0.007	0.005	0.007
2018 y.	0.108	0.085	0.017	0.018	0.012	0.022	0.021	0.017	0.019	0.007	0.005	0.009
2019 y.	0.104	0.091	0.016	0.016	0.011	0.02	0.019	0.016	0.018	0.008	0.004	0.008
Pearson's criterion		**0.50**	**0.81**	**0.89**	**0.25**	**0.66**	**0.92**	**0.91**	**0.93**	**0.75**	**0.44**	**0.76**

Table 2. *The magnitude of the influence coefficient of individual surgical articles in the mathematical model of medexpertise on the scale of the Republic of Armenia and individual regions for 2013-2019 years (Pearson's criterion was calculated by comparison with the general mathematical model of the Republic of Armenia).*

Categories			**unfit**						**fit with restrictions**					
Articles			**36**	**38**	**43**	**47**	**54**	**other**	**36**	**38**	**43**	**47**	**54**	**other**
On the scale of the Republic of Armenia	P_j	2013 г.	4.94	4.53	11.11	22.68	4.73	2.04	5.67	5.67	6.93	10.41	7.72	5.95
		2014 г.	3.70	3.31	8.16	20.66	3.84	2.04	3.19	4.94	8.16	11.11	5.67	6.93
		2015 г.	3.31	2.60	6.93	17.36	4.34	2.04	3.19	4.53	11.89	14.79	4.53	8.16
		2016 г.	2.87	2.69	7.30	11.89	3.19	1.88	4.00	4.16	9.77	11.89	4.00	8.65
		2017 г.	3.43	3.08	8.16	11.89	2.97	1.93	3.08	3.19	7.72	11.11	4.16	5.67
		2018 г.	3.84	3.08	14.79	18.90	3.19	1.73	4.53	3.08	9.77	11.11	4.16	2.78
		2019 г.	4.00	4.34	11.11	20.66	2.10	1.78	11.11	7.72	14.79	16.00	6.25	5.95
Yerevan	P_j	2013 г.	1.56	1.64	2.97	6.57	1.60	0.92	1.56	2.10	3.08	4.16	2.97	2.44
		2014 г.	0.92	0.98	1.98	6.93	1.45	0.73	1.02	2.16	3.31	3.43	2.60	2.60
		2015 г.	0.89	0.83	2.16	3.70	1.60	0.78	0.89	1.69	4.34	4.34	2.44	2.87
		2016 г.	0.77	0.87	1.93	3.84	1.26	0.69	1.38	1.60	2.78	3.19	1.64	2.60
		2017 г.	0.98	1.16	2.97	4.73	1.06	0.84	0.94	1.00	2.52	4.73	1.83	2.23
		2018 г.	1.26	1.26	3.56	5.41	1.26	0.62	1.52	1.00	2.60	4.34	2.10	1.04
		2019 г.	1.35	1.98	3.31	6.57	1.06	0.73	4.94	2.78	4.16	5.67	2.52	2.78
Pearson's criterion			**0.9**	**0.9**	**0.9**	**0.8**	**0.9**	**0.7**	**1.0**	**1.0**	**0.7**	**0.6**	**0.9**	**0.9**
Ararat	P_j	2013 г.	0.59	0.36	1.18	1.78	0.22	0.13	0.38	0.42	0.31	0.48	0.48	0.40
		2014 г.	0.31	0.30	0.52	3.08	0.26	0.15	0.27	0.33	0.52	1.23	0.39	0.52
		2015 г.	0.32	0.32	0.48	2.87	0.28	0.14	0.22	0.26	0.48	0.72	0.36	0.48
		2016 г.	0.23	0.26	0.58	0.66	0.20	0.42	0.27	0.25	0.52	1.16	0.47	0.11
		2017 г.	0.42	0.23	0.65	1.52	0.17	0.15	0.23	0.31	0.76	4.53	0.57	0.42
		2018 г.	0.39	0.23	0.55	1.29	0.24	0.96	0.55	0.19	0.96	1.29	0.19	0.13
		2019 г.	0.29	0.31	1.73	0.86	0.16	0.13	1.73	0.49	3.43	0.68	1.13	0.86
Pearson's criterion			**0.8**	**0.6**	**0.3**	**0.3**	**0.7**	**0.7**	**1.0**	**0.9**	**0.8**	**0.3**	**0.4**	**0.1**
Armavir	P_j	2013 г.	0.46	0.27	0.58	2.60	0.56	0.13	0.46	0.48	0.71	0.35	0.66	0.48
		2014 г.	0.42	0.36	0.65	1.73	0.36	0.19	0.18	0.38	0.74	0.69	0.39	0.50
		2015 г.	0.40	0.26	0.57	1.32	0.33	0.18	0.30	0.30	0.72	1.32	0.47	0.72
		2016 г.	0.26	0.25	0.64	1.06	0.28	0.18	0.49	0.27	1.06	0.57	0.21	1.26
		2017 г.	0.42	0.27	0.42	0.69	0.29	0.17	0.33	0.30	0.69	0.33	0.27	0.57
		2018 г.	0.34	0.30	0.91	1.35	0.21	0.17	1.35	0.45	0.77	0.32	0.22	0.17
		2019 г.	0.41	0.35	1.49	2.23	0.12	0.14	1.49	0.44	1.49	0.56	0.64	0.32
Pearson's criterion			**0.7**	**0.4**	**0.5**	**0.9**	**0.9**	**0.2**	**0.8**	**0.4**	**0.8**	**0.6**	**0.9**	**0.8**
Categories			unfit						fit with restrictions					
Articles			36	38	43	47	54	other	36	38	43	47	54	other
Aragatsotn	P_j	2013 г.	0.25	0.23	1.38	0.55	0.13	0.11	0.20	0.17	0.46	1.38	0.40	0.40
		2014 г.	0.29	0.22	0.49	0.98	0.20	0.08	0.29	0.22	1.45	0.98	2.87	0.58
		2015 г.	0.32	0.18	0.57	0.0	0.28	0.15	0.15	0.22	0.47	2.78	0.24	0.57
		2016 г.	0.28	0.28	1.52	0.77	0.28	0.11	0.11	0.17	0.31	0.0	0.51	0.22
		2017 г.	0.48	0.22	0.60	2.44	0.14	0.14	0.24	0.22	0.30	0.81	0.19	0.17
		2018 г.	0.21	0.19	0.0	0.62	0.27	0.09	0.19	0.12	0.37	0.92	0.27	0.13
		2019 г.	0.21	0.24	0.36	0.0	0.09	0.08	0.29	0.48	0.48	0.0	0.24	0.24
Pearson's criterion			**0.4**	**0.2**	**0.5**	**0.6**	**0.3**	**0.4**	**0.4**	**0.8**	**0.2**	**0.1**	**0.2**	**0.5**
Gegharkunik	P_j	2013 г.	0.39	0.34	1.18	1.35	0.53	0.14	0.53	0.39	0.45	1.35	0.94	0.38
		2014 г.	0.45	0.24	0.67	8.16	0.34	0.13	0.32	0.34	0.37	1.00	1.16	0.45
		2015 г.	0.50	0.26	0.78	1.23	0.86	0.15	0.41	0.25	1.42	1.42	0.72	0.66
		2016 г.	0.42	0.19	0.74	0.0	0.37	0.18	0.40	0.37	0.61	1.35	0.22	0.84
		2017 г.	0.33	0.20	1.78	1.78	0.59	0.14	0.32	0.26	1.06	0.76	0.44	0.53
		2018 г.	0.39	0.25	5.17	0.0	0.28	0.19	0.57	0.28	2.52	0.73	0.51	0.30
		2019 г.	0.31	0.25	4.94	2.44	0.18	0.16	1.64	0.71	1.23	1.23	0.38	0.38
Pearson's criterion			**0.3**	**0.7**	**0.8**	**0.4**	**0.6**	**0.8**	**1.0**	**0.9**	**0.4**	**0.4**	**0.5**	**0.8**

Lori	P_j	2013 г.	0.46	0.27	0.58	2.60	0.56	0.18	0.46	0.48	0.71	0.35	0.66	0.96
		2014 г.	0.42	0.36	0.65	1.73	0.36	0.28	0.18	0.38	0.74	0.69	0.39	1.73
		2015 г.	0.40	0.26	0.57	1.32	0.33	0.22	0.30	0.30	0.72	1.32	0.47	2.60
		2016 г.	0.26	0.25	0.64	1.06	0.28	0.16	0.49	0.27	1.06	0.57	0.21	0.91
		2017 г.	0.42	0.27	0.42	0.69	0.29	0.17	0.33	0.30	0.69	0.33	0.27	0.78
		2018 г.	0.34	0.30	0.91	1.35	0.21	0.15	1.35	0.45	0.77	0.32	0.22	0.25
		2019 г.	0.41	0.35	1.49	2.23	0.12	0.15	1.49	0.44	1.49	0.56	0.64	0.44
Pearson's criterion			**0.7**	**0.4**	**0.5**	**0.9**	**0.9**	**0.7**	**0.8**	**0.4**	**0.8**	**0.6**	**0.9**	**0.7**
Kotayk	P_j	2013 г.	0.43	0.43	0.96	2.87	0.26	0.20	0.51	0.78	0.96	0.51	0.54	0.54
		2014 г.	0.40	0.34	0.80	1.26	0.31	0.19	0.23	0.40	1.11	0.73	0.25	0.40
		2015 г.	0.30	0.24	0.39	2.23	0.32	0.23	0.28	0.94	2.23	0.94	0.16	1.32
		2016 г.	0.30	0.23	0.80	0.68	0.24	0.09	0.53	0.48	1.60	0.68	0.23	1.21
		2017 г.	0.26	0.26	0.57	0.91	0.22	0.18	0.27	0.26	0.91	0.65	0.23	0.35
		2018 г.	0.28	0.24	2.37	1.18	0.16	0.12	0.34	0.30	2.37	0.96	0.23	0.17
		2019 г.	0.45	0.31	0.81	0.0	0.09	0.12	1.00	0.81	1.35	2.04	0.31	0.31
Pearson's criterion			**0.7**	**0.8**	**0.9**	**0.4**	**0.8**	**0.8**	**1.0**	**0.7**	**0.4**	**0.8**	**0.9**	**0.8**
Categories			unfit						fit with restrictions					
Articles			36	38	43	47	54	other	36	38	43	47	54	other
Shirak	P_j	2013 г.	0.58	0.34	2.52	2.52	0.56	0.17	0.76	0.65	0.72	2.16	0.63	0.44
		2014 г.	0.34	0.24	0.74	1.09	0.29	0.18	0.37	0.52	0.84	2.97	0.48	0.59
		2015 г.	0.21	0.20	1.42	2.87	0.25	0.11	0.39	0.65	1.42	2.10	0.29	0.48
		2016 г.	0.29	0.24	0.64	0.77	0.22	0.16	0.71	0.39	1.52	1.29	0.39	0.71
		2017 г.	0.29	0.33	1.56	1.04	0.18	0.12	0.23	0.23	0.78	2.10	0.30	0.78
		2018 г.	0.38	0.38	3.08	1.21	0.29	0.12	0.22	0.24	0.67	3.08	0.38	0.31
		2019 г.	0.46	0.37	0.98	1.49	0.17	0.15	0.74	0.43	1.98	5.95	0.37	0.54
Pearson's criterion			**0.9**	**0.6**	**0.8**	**0.5**	**0.8**	**0.3**	**0.6**	**0.5**	**0.9**	**0.6**	**0.8**	**0.5**
Syunik	P_j	2013 г.	0.09	0.20	0.20	0.81	0.13	0.06	0.41	0.20	0.20	0.81	0.27	0.15
		2014 г.	0.13	0.16	0.58	1.78	0.14	0.09	0.11	0.12	0.18	0.35	0.15	0.35
		2015 г.	0.10	0.10	0.29	1.13	0.10	0.05	0.09	0.23	0.23	0.0	0.10	0.14
		2016 г.	0.09	0.10	1.11	0.56	0.22	0.06	0.16	0.16	1.11	0.0	0.12	0.56
		2017 г.	0.10	0.08	0.45	0.45	0.11	0.08	0.15	0.08	0.45	0.89	0.06	0.89
		2018 г.	0.08	0.07	0.0	0.0	0.08	0.07	0.21	0.11	0.42	0.21	0.09	0.14
		2019 г.	0.10	0.11	0.25	0.0	0.08	0.06	0.20	0.25	0.0	1.00	0.50	0.25
Pearson's criterion			**0.1**	**0.6**	**0.7**	**0.2**	**0.2**	**0.1**	**0.3**	**0.8**	**0.3**	**0.1**	**0.7**	**0.2**
Vayots Dzor	P_j	2013 г.	0.07	0.06	0.36	0.36	0.12	0.05	0.05	0.09	0.12	0.09	0.09	0.09
		2014 г.	0.09	0.04	0.36	0.0	0.09	0.06	0.12	0.09	0.18	0.09	0.12	0.18
		2015 г.	0.07	0.03	0.17	0.0	0.34	0.04	0.05	0.07	0.17	0.34	0.17	0.34
		2016 г.	0.09	0.04	0.34	0.34	0.07	0.09	0.03	0.17	0.34	0.34	0.11	0.34
		2017 г.	0.04	0.09	0.28	0.28	0.14	0.05	0.03	0.14	0.28	0.28	0.07	0.0
		2018 г.	0.13	0.02	0.26	0.0	0.09	0.07	0.04	0.07	0.26	0.0	0.26	0.13
		2019 г.	0.07	0.05	0.07	0.14	0.02	0.02	0.07	0.0	0.0	0.0	0.0	0.0
Pearson's criterion			**0.02**	**0.3**	**0.1**	**0.3**	**0.6**	**0.1**	**0.1**	**0.7**	**0.5**	**0.02**	**0.5**	**0.6**
Tavush	P_j	2013 г.	0.25	0.18	1.13	1.13	0.19	0.07	0.45	0.13	0.25	0.38	0.16	0.25
		2014 г.	0.20	0.12	1.93	0.65	0.11	0.07	0.09	0.13	0.14	0.16	0.10	0.22
		2015 г.	0.09	0.05	0.38	0.38	0.10	0.06	0.10	0.14	0.57	0.19	0.12	0.19
		2016 г.	0.10	0.06	0.23	0.23	0.05	0.04	0.10	0.10	0.0	0.57	0.12	0.38
		2017 г.	0.08	0.06	0.21	0.17	0.07	0.04	0.11	0.08	0.21	0.42	0.11	0.28
		2018 г.	0.13	0.10	0.91	0.91	0.11	0.06	0.31	0.13	0.91	0.91	0.15	0.07
		2019 г.	0.11	0.15	0.25	0.38	0.07	0.08	0.25	0.19	0.38	0.0	0.25	0.15
Pearson's criterion			**0.8**	**0.9**	**0.2**	**0.8**	**0.8**	**0.02**	**0.4**	**0.8**	**0.3**	**0.6**	**0.5**	**0.7**

with rare rises, with some stability in individual regions of the Republic of Armenia (in general Republic of Armenia and Yerevan).

Accordingly, in this context, special importance was attached to determining the influence coefficient - P_j (Table 1). The analysis shows that:

1. regarding the possibility of replenishing the contingent and persons subject to examination:

- the greatest influence is exerted by the city of Yerevan, however, there is a very strong correlation connection between the influence coefficients of the all-republican and all other administrative units of the Republic of Armenia, i.e. their impact, both individually and taken together has an essential and important meaning in shaping the possibility of replenishment with some reservations in relation to the Aragatsotn and Vayots Dzor regions, in which the correlation criteria have high values, respectively 0.7 and 0.6;
- Regarding the expertise the influence coefficient has a high value in the case of Yerevan, but when conducting a correlation, a strong correlation with the Republic of Armenia is observed, with the exception of Aragatsotn, Vayots Dzor and Tavush regions.

Analysis of the situation (Table 2) of the medical expertise of this category of people with surgical diseases for individual articles by determining the influence coefficient shows that:

1. when considering all articles of surgical diseases, the values of the influence coefficient differ from year to year,
2. magnitudes of values of all articles when comparing individual categories do not undergo significant and fundamental changes during the years of the study; isolated, not common, but noticeable fluctuations are observed,
3. deviations depending on the category “unfit” and “fit with restrictions” are sharply expressed,
4. for the remaining articles, in most cases, for all years of the study, taking into account the already studied categories, similar magnitudes of their values are recorded.

Based on the above, it can be draw conclusions, that.

- values of the influence coefficients of surgical articles for 2013-2019 years from the point of view of medexpertise of young men with surgical diseases, with some exceptions, their graphs are stable, there are no sharp fluctuations,
- Pearson's criterion when comparing the influence coefficients of different articles in the case of a specific regions in relation to the Republic of Armenia, with rare exceptions, is above 0.5, i.e., there is a correlation between them, but their intensities differ, according to the value of the Pearson criterion in relation to Aragatsotn, Syunik, Vayots Dzor regions, when compared with the main model, the presence of correlation is not recorded.

Conclusion.

Generalizing, we can draw the following conclusions:

• Medical aspects of replenishment of the Armed Forces may be associated with deeply rooted systemic complex phenomena, which, in all likelihood, are due to the imperfect functioning of both primary and inpatient units of the health care system, a certain paucity of methods for their research, imperfect professional knowledge, diagnostic difficulties, and the individual nature of the course diseases,

• One gets the impression, that such indicators, as opportunities for replenishment and the presence of surgical diseases in male youth aged 18-27 years, have meaning for this category of the entire population of the Republic of Armenia, at the same time, it is not limited to any administrative unit and must be considered as a whole.

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О РЕЗУЛЬТАТАХ СИСТЕМНОГО МНОГОФАКТОРНОГО АНАЛИЗА С МАТЕМАТИЧЕСКИМ МОДЕЛИРОВАНИЕМ ПОКАЗАТЕЛЕЙ МЕДИЦИНСКОЙ ЭКСПЕРТИЗЫ ЛИЦ МУЖСКОГО ПОЛА МОЛОДОГО ВОЗРАСТА С ХИРУРГИЧЕСКИМИ ЗАБОЛЕВАНИЯМИ В РЕСПУБЛИКЕ АРМЕНИЯ

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Медицинские аспекты организации пополнения Вооруженных Сил здоровыми и физически крепкими кадрами имеет важное значение, а дефицит численности

призывников и низкокачественное их состояние стали одними из основных и важных проблем для ВС.

Целью данного исследования являлось улучшение организации медицинских аспектов пополнения Вооруженных Сил РА на основе ее математического моделирования.

Объектом исследования явилось изучение наименований статей хирургического профиля, по которым эти люди были признаны негодными или ограниченно годными к службе, результатов военно-врачебной экспертизы. В ходе исследования применялись описательный, социальный и статистический методы. Завершающим этапом было проведение системного многофакторного анализа с целью получения математической модели исследуемого процесса.

Приведены значения коэффициентов влияния указанных показателей за 2013-2019 гг. на полученных математических моделях с точки зрения военно-врачебной экспертизы юношей с хирургическими заболеваниями как в целом по Республике Армения, так и ее отдельных областях.

Обобщая, можно констатировать, что с точки зрения военно-медицинской экспертизы юношей с хирургическими заболеваниями нельзя рассматривать г. Ереван и области РА как отдельные части, т.к. они по результатам системного многофакторного анализа с математическим моделированием выступают как единое целое.

Ключевые слова: военно-врачебная экспертиза, хирургические заболевания, системный многофакторный анализ, математическое моделирование.