

**A MATHEMATICAL MODEL AND PROGRAM OF TREATMENT
SUCCESS AND PREDICTION USING REGRESSION ANALYSIS IN
MEDICINE**

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Abstract

In modern medicine, with the help of computers, it is often necessary to determine the comparative value of the general parameters of the differences between the selected objects that are observed or compared in experimental and clinical research. In solving this task, it is necessary to show clear and concrete values, that is, to determine the characteristic signs of the pathological process, to monitor the dynamic development of the disease, to evaluate the effective traditions of treatment, and others.

Parametric criteria have a greater value (power) than non-parametric criteria in the case of a normal distribution of characters (factors). Parametric criteria have the property of rejecting the null hypothesis without error if it is actually false. Therefore, in most cases, the samples to be compared are taken from a normally distributed population and treated with parametric criteria.

Prediction of treatment outcomes was performed using software based on multivariable regression analysis. It is based on a linear multivariate regression model

$$y^k = \beta_0 + \beta_1 x_1^k + \beta_2 x_2^k + \dots + \beta_m x_m^k + \varepsilon^k \quad (2)$$

If the distribution of characters (factors) is very different from the normal distribution, then non-parametric criteria can be used, and the non-parametric criterion is more powerful in these cases.

We used the C++ Builder programming language to obtain these results.

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	K(x2)	K(x3)	K(x4)	K(x5)	Св.член
B	1	2	1	5	5
C	-1	-3	-1	0	-7.2
D	0	2	1	1	1
E	2	1	1	-1	1

X(1)	X(2)	X(3)	X(4)	X(5)
-42.600	-6.067	4.133	43.467	-8.133

N ni kiriting: Jadvalni tuzing Sistemani yeching

Figure 1. Determining the coefficients of the equation

$y_1 = 1.44 - 1.201x_1 + 1.062x_2 + 3x_3 - 3.5x_4 + 1.25x_5 - 1.268x_6 + 1.268x_7 + 2.25x_8 + 0.875x_9 + 3.5x_{10} + 0x_{11} + 0.75x_{12}$

Birinchi boshqaruv

☐ R kvadrat ☐ R ko'paytma ☐ kuzatuvlar soni ☐ Standart xatolik

Figure 2. Derive the regression equation using the determined coefficients.

Conclusion: With the help of the program created above, it is possible to identify and predict many factors affecting the treatment of patients in medicine. After that, it will be possible to determine and design the treatment process through the program.

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