Biostatistika

Mühazirə 15

Tibbi və bioloji fizika kafedrası

Dosent İ.A.Qafarov

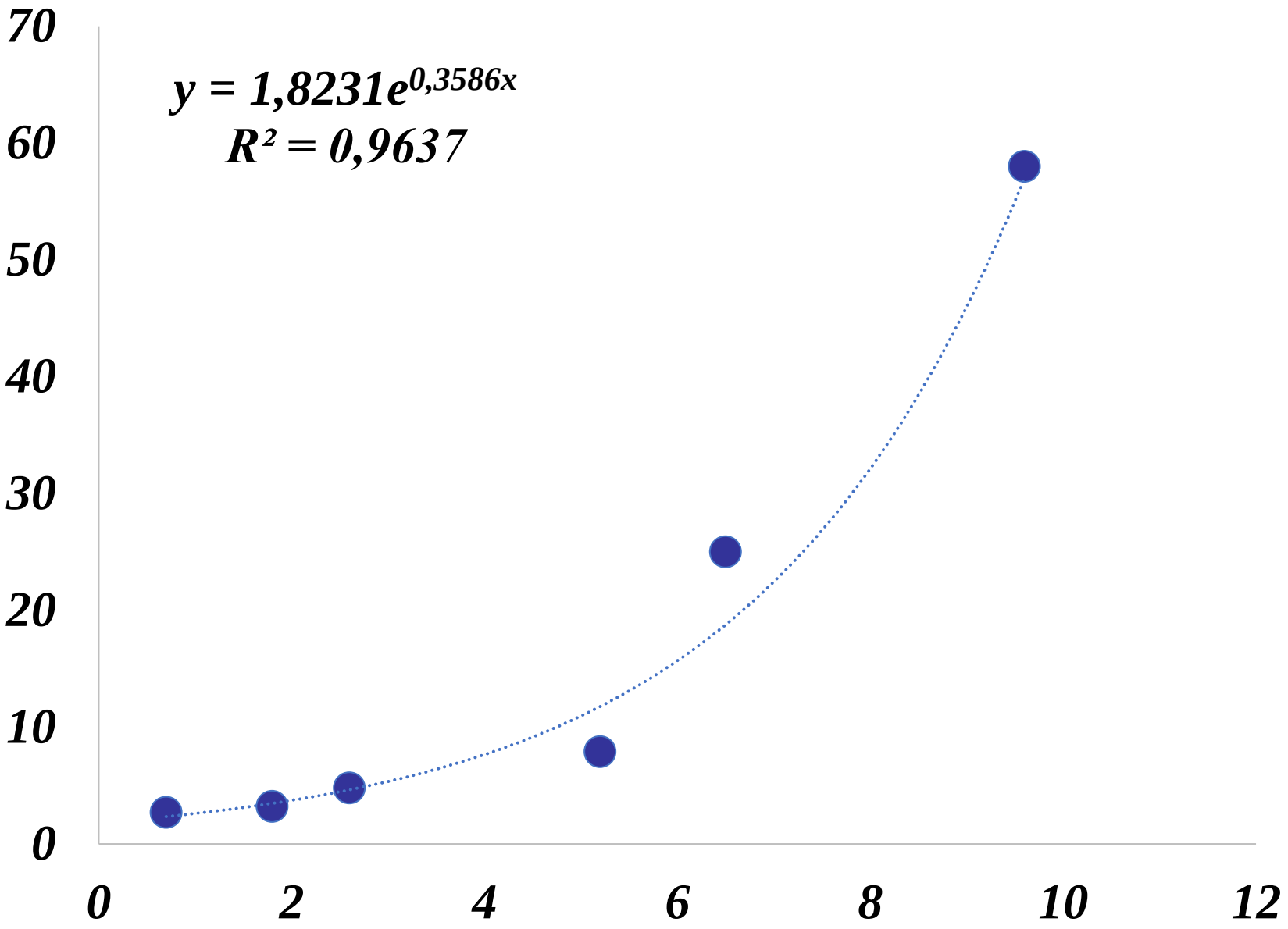
Reqressiya analizi

Reqressiya analizi – asılı qruplarda iki və ya daha çox təsadüfi göstərici arasında asılılığın riyazi ifadə ilə təsvir üsuludur.

Reqressiya analizinin növləri

- ***Xətti***
  - ***Polinominal***
    - ***Loqarifmik***
      - ***Üstlü***
        - ***Eksponensial***
- ***Kateqorial***
  - ***Logistik***
    - ***Multinominal***
      - ***Kaplan-Meyer***
        - ***Koks və s.***

Reqressiya analizi

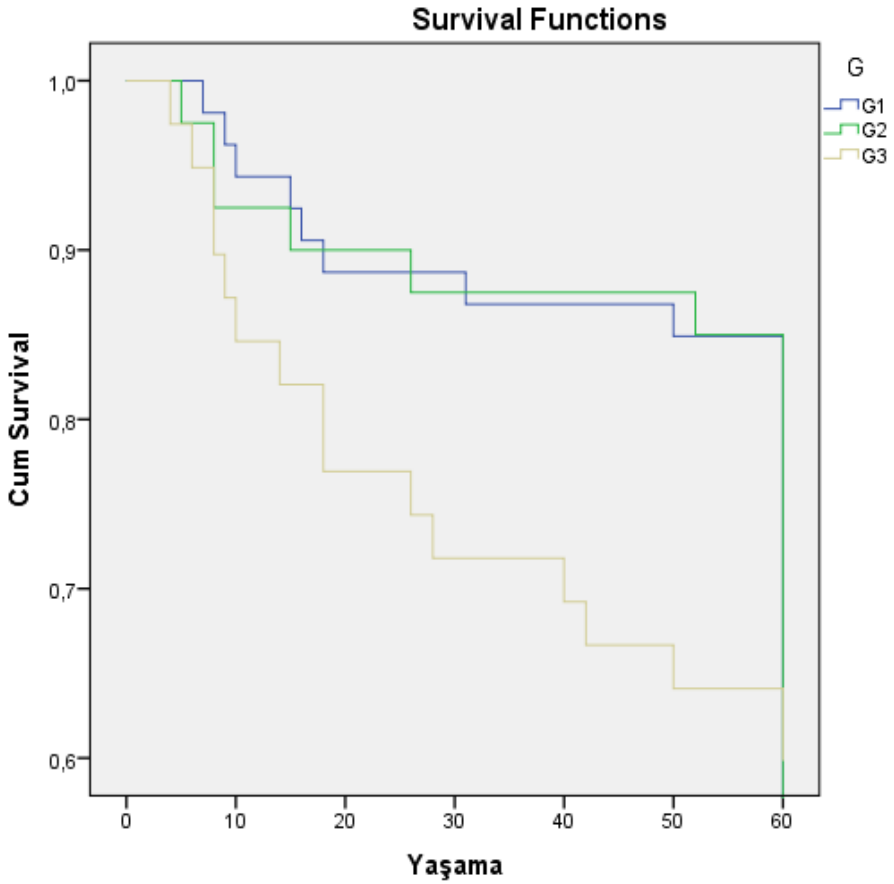


Reqressiya analizi

(Mantel-Cox modeli, Kaplan-Meyer proseduru)

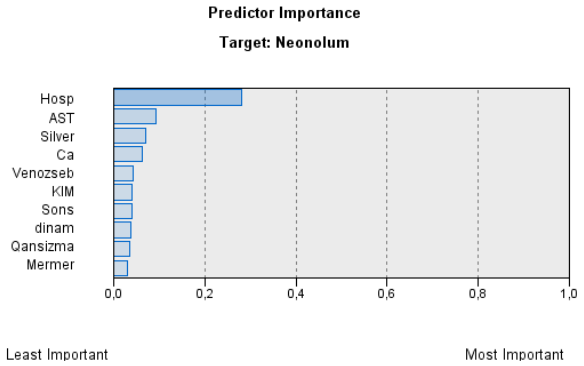
Means and Medians for Survival Time								
G	Mean				Median			
	Estimate	Std. Error	95% Confidence Interval		Estimate	Std. Error	95% Confidence Interval	
			Lower Bound	Upper Bound			Lower Bound	Upper Bound
G1	53,887	2,138	49,697	58,077	60,000	,000	.	.
G2	53,850	2,553	48,847	58,853	60,000	,000	.	.
G3	45,667	3,406	38,990	52,343	60,000	,000	.	.
Overall	51,447	1,555	48,399	54,495	60,000	,000	.	.

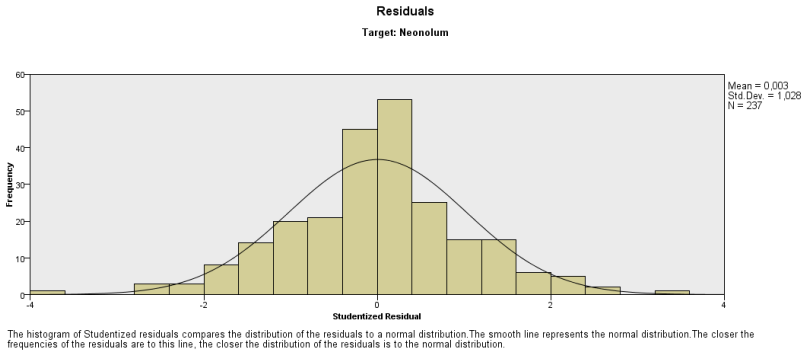
Overall Comparisons			
	Chi-Square	df	Sig.
Log Rank (Mantel-Cox)	7,369	2	0,025

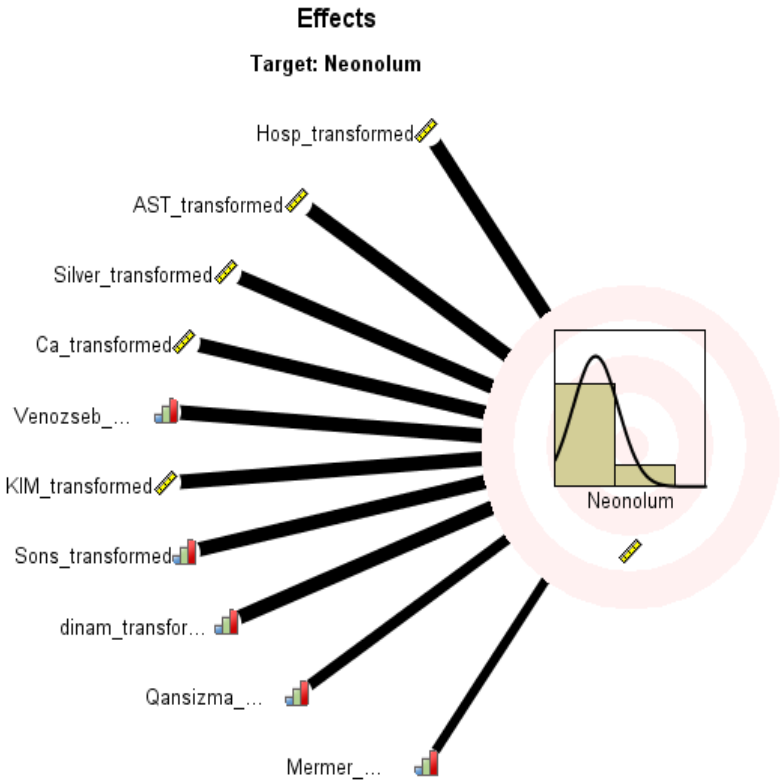


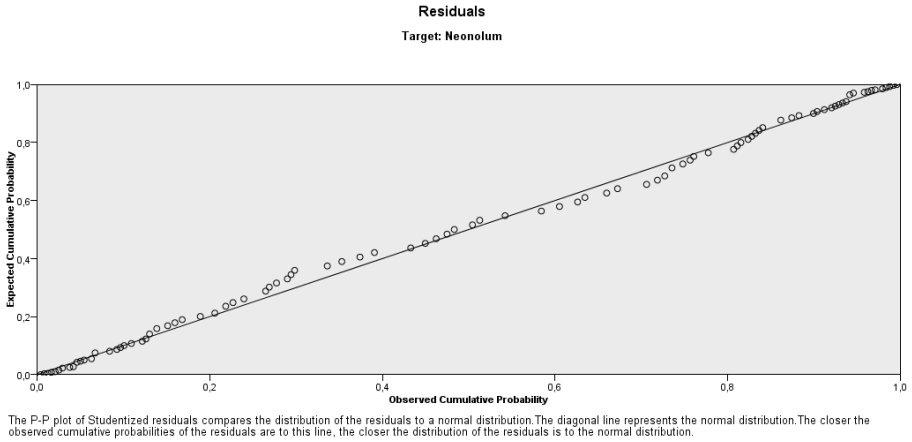
Reqressiya analizi

(Addım-addım xətti reqressiya modeli)









Effects

Target: Neonolum

Source	Sum of Squares	df	Mean Square	F	Sig.
Corrected Model	272 928,846	30	9 097,628	28,344	,000
Residual	66 440,902	207	320,971		
Corrected Total	339 369,748	237			

$$Nəticə = A_0 + A_1 * Prediktor_1 + A2 * Prediktor_2 + ... + A_к * Prediktor_к$$

Sonra alınan düstur «imtahan»dan keçməli – düsturun həssaslığı, spesifikliyi və s. yoxlanılmaqla, nəticələr statistik qiymətləndirilməlidir.

Dispersiya analizi (uANOVA testi)

Between-Subjects Factors			
		Value Label	N
Qrup	0	Kontrol	17
	1	NEK	30
Genotip	1	AA	15
	2	AG	25
	3	GG	7

Levene's Test of Equality of Error Variances

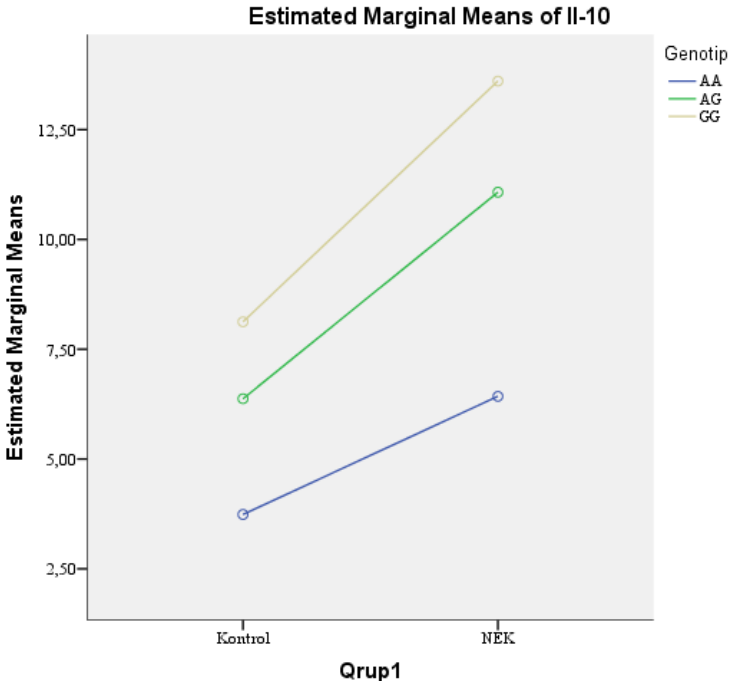
Dependent Variable: Il-10

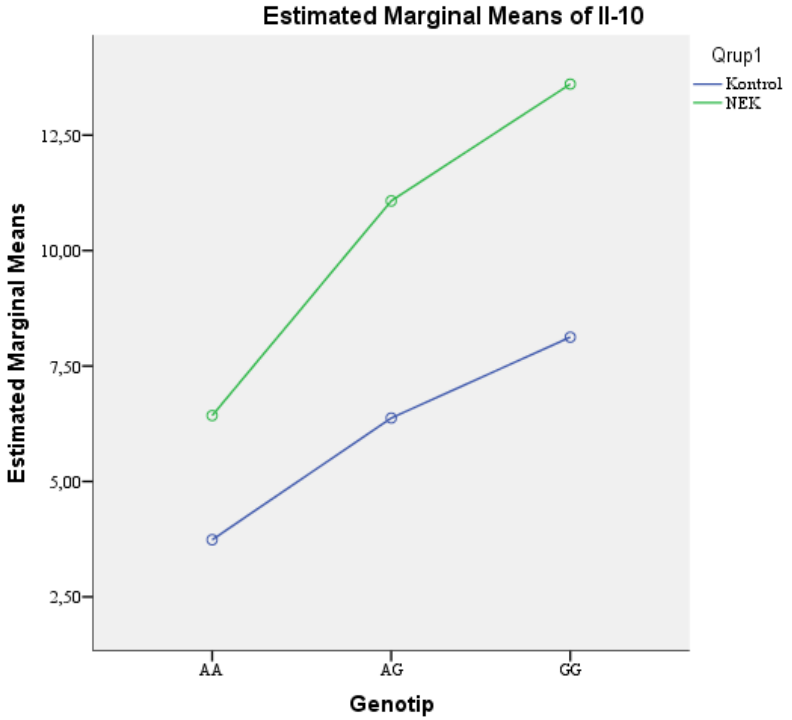
F	df1	df2	Sig.
4,263	5	41	0,003

Tests of Between-Subjects Effects

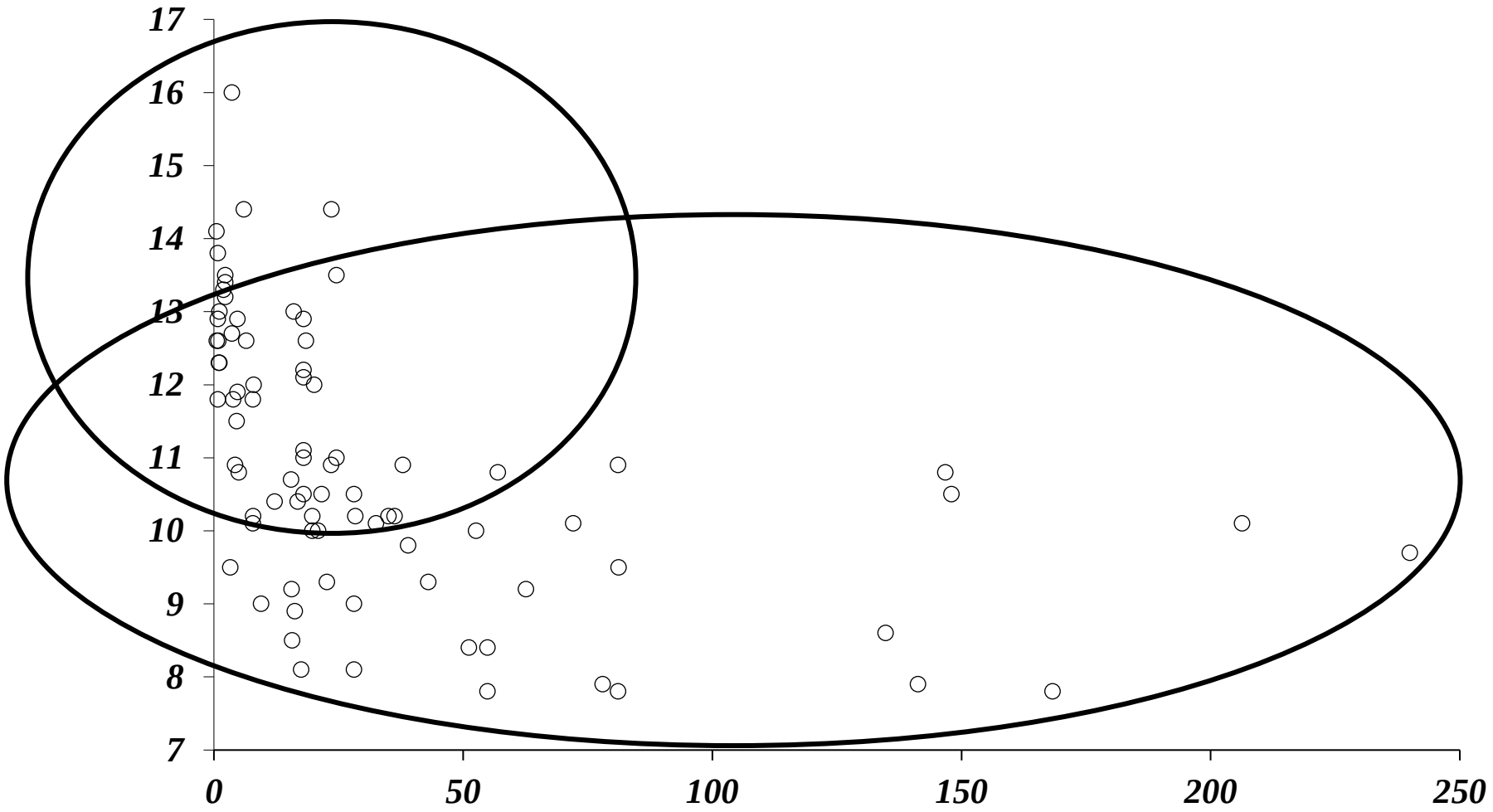
Dependent Variable: Il-10

Source	Type III Sum of Squares	df	Mean Square	F	Sig.
Corrected Model	452,306	5	90,461	8,256	0,000
Intercept	2114,629	1	2114,629	193,004	0,000
Qrup	143,982	1	143,982	13,141	0,001
Genotip	179,727	2	89,863	8,202	0,001
Qrup * Genotip	11,954	2	5,977	0,546	0,584
Error	449,212	41	10,956		
Total	4290,640	47			
Corrected Total	901,517	46			

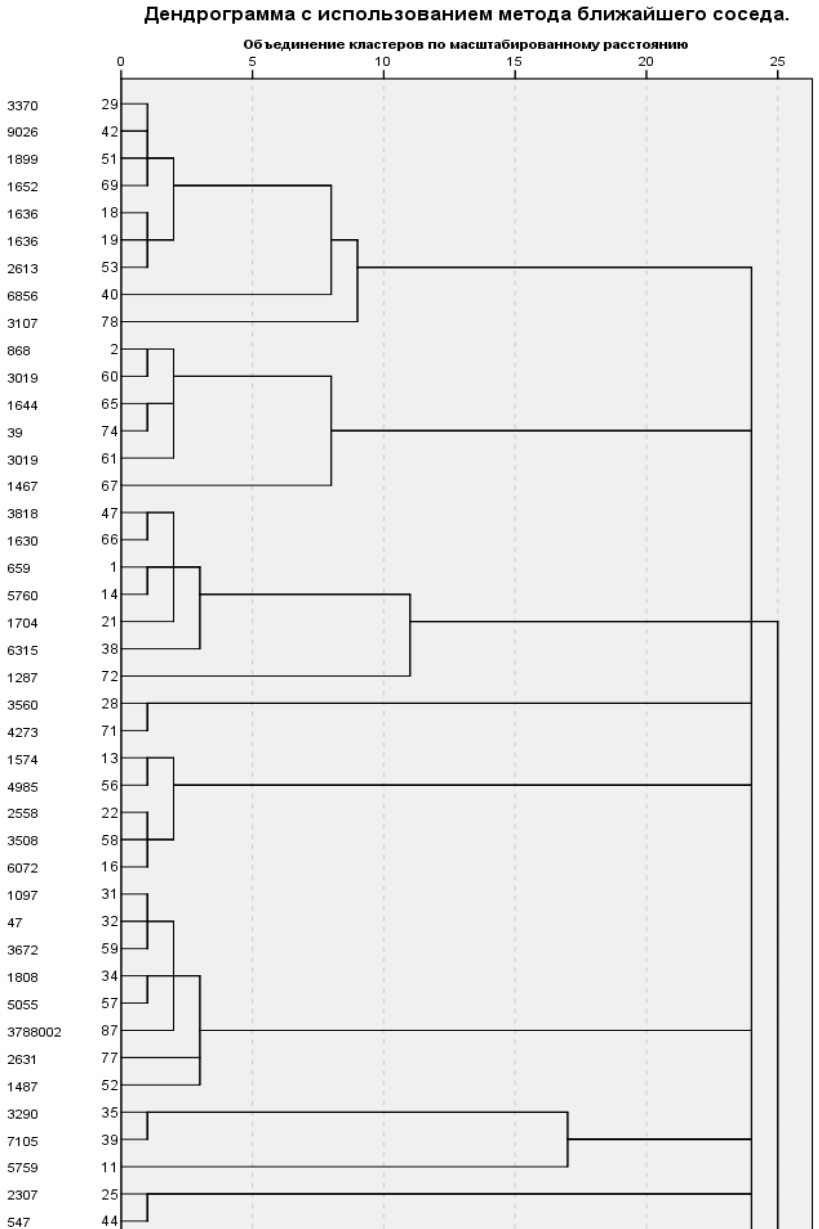


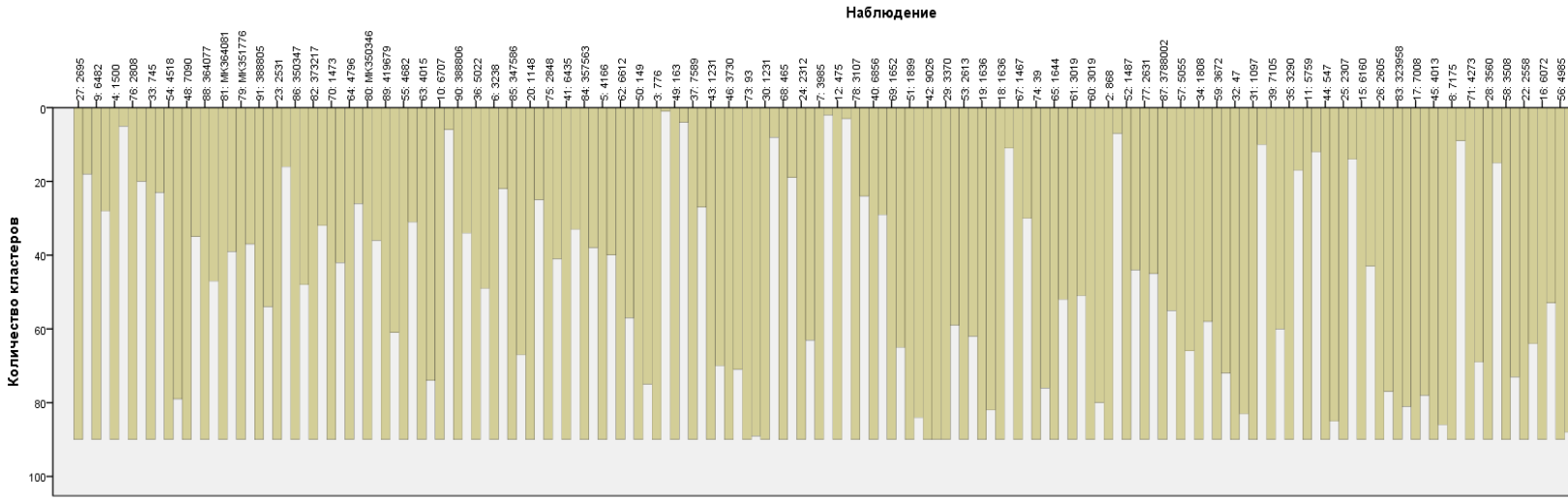


Klaster analizi



Klaster analizi
(yaxın qonşu üsulu)





Biostatistik tədqiqatların aparılması üçün istifadə olunan proqram təminatı

- **MS EXCEL cədvəl prosessoru.**
- **BİOSTAT.** *(https://www.analystsoft.com/ru/products/biostat/)*
- **BMDP (BioMeDical Package).** *(https://www.statsols.com/statsols-about)*
- **DoctorStat.** *(http://doctorstat.narod.ru/).*
- **IMSL (International Mathematics and Statistics Library).** *(https://www.imsl.com/)*
- **MedCalc.** *(https://www.medcalc.org/)*
- **MicrOsiris.** *(http://www.microsiris.com/)*
- **Mondrian.** *(http://www. theusrus.de/Mondrian/)*
- **PAST.** *(http://priede.bf.lu.lv/ftp/pub/TIS/datu_analiize/PAST/2.17c/download.html)*
- **R.** *(https://cran.r-project.org/)*
- **SAS.** *(https://www.jmp.com/en_us/ home.html)*
- **SPSS** *(https://www.ibm.com/analytics/spss-statistics-software).*
- **STADIA.** *(http://protein.bio.msu.ru/~akula/ Podr2~1.htm).*
- **STATGRAPHICS.** *(https://rsload.net/soft/manager/31804-statgraphics-centurion. html).*
- **STATISTICA.** *(https://www.tibco.com/ products/data-science)*
- **Zeling.** *(https://cran.r-project.org/web/packages/Zelig/index.html)*

İnteraktiv web-səhifələr

- **BoxPlotR.** ***(****http://boxplot.tyerslab.com/)*
- **Free Statistics and Forecasting Software.** *(https://www.wessa.net/desc.wasp)*
- **QuickCalcs.** ***(****http://www.graphpad. com/quickcalcs/)*
- **Mathpotal.** *(https://www.mathportal.org/calculators/statistics-calculator/index.php)*
- **Medstatistic.ru.** *(https://medstatistic.ru/calculators/calcmann.html)*
- **SISA** ***(****http://www.quantitativeskills.com/sisa/)*
- **Social Science Statistics. (***https://www. socscistatistics.com/)*
- **Statistics 5102 Examples.** *(http://www.stat.umn.edu/geyer/s12/5102/examp/)*
- **Vassarstat.** ***(****http://vassarstats.net/)*
- **Web Pages that Perform Statistical Calculations.** *(http://statpages.org/)*

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