Correlation between numeric variables

The Pearson's correlation coefficient was used to determine the correlation between two quantitative variables. The following table shows the small, medium and large correlations between the genetic factors and numeric clinical factors. The genetic factors are ordered from higher to lower correlation values. We can see that large correlations were not detected, except in the case of PCA3exp with RNU11. All scatter plots can be consulted in the folder "Correlations". The scatter plots did not show good relations…

Clinical factor	**Correlations**		
	Small (.1 to .3 , -0.1 to -0.3)	**Medium (.3 to .5 -0.3 to -0.5)**	**Large (.5 to 1.0 -0.5 to -1.0)**
BMI	Positive: RBM22, SRSF3,PRPF8, RBM3, SF3B1,PRPF40A, NOVA1,RAVER1, SRRM1 Negative:U2AF2, snRNP200, MAGOH, U4ATAC, RNU12	Positive: SF3B1tv1 Negative: SFPQ	
Age	Positive: SRRM1, RNU11, SRSF3, SF3B1tv1 Negative: RAVER1, SRSF6, RBM3	Positive: RNU12, SF3B1	
Gleason score	Positive: SRRM4, U4ATAC, RAVER1, snRNP200, MAGOH, KHDRSB1, PRPF40A, RBM3 Negative: SF3B1, SF3B1tv1, RNU12		
PSA	Positive: snRNP200, U2AF2, RBM3, SRSF6 Negative: U4ATAC	Positive: RNU12,	
PSAexp	Positive: SFPQ, RBM3, SF3B1, U4ATAC, KHDRSB1, PRPF8 Negative: PRPF40A , RAVER1	Positive: NOVA1, SRRM1, SRSF3 Negative: SRRM4	
PCA3 exp	Positive: RNU12, SRSF6, U2AF2, KHDRSB1, PRPF8	Positive: SF3B1tv1, U4ATAC, snRNP200	Positive: RNU11

	Negative: PRPF40A, SRRM4, SFPQ		
sst5TMD4exp	Positive: KHDRSB1, RNU12, SRRM1, NOVA1, RBM22, SRSF3, RBM3 Negative: PRPF40A SFPQ	Positive: RNU11, SRRM4, PRPF8, U2AF2, snRNP200, U4ATAC	
In1Ghrelinexp	Positive: SFPQ, RNU12, SRRM4, PRPF40A, MAGOH, KHDRSB1 Negative: SF3B1tv1, snRNP200, RNU11, U2AF2, SRSF6, RBM22	Positive: SRSF3, RBM3,	
Arexp	Negative: SRRM4,SRSF3, MAGOH,U2AF2, RNU11, KHDRSB1,SF3B1, snRNP200, PRPF40A	Negative: U4ATAC	

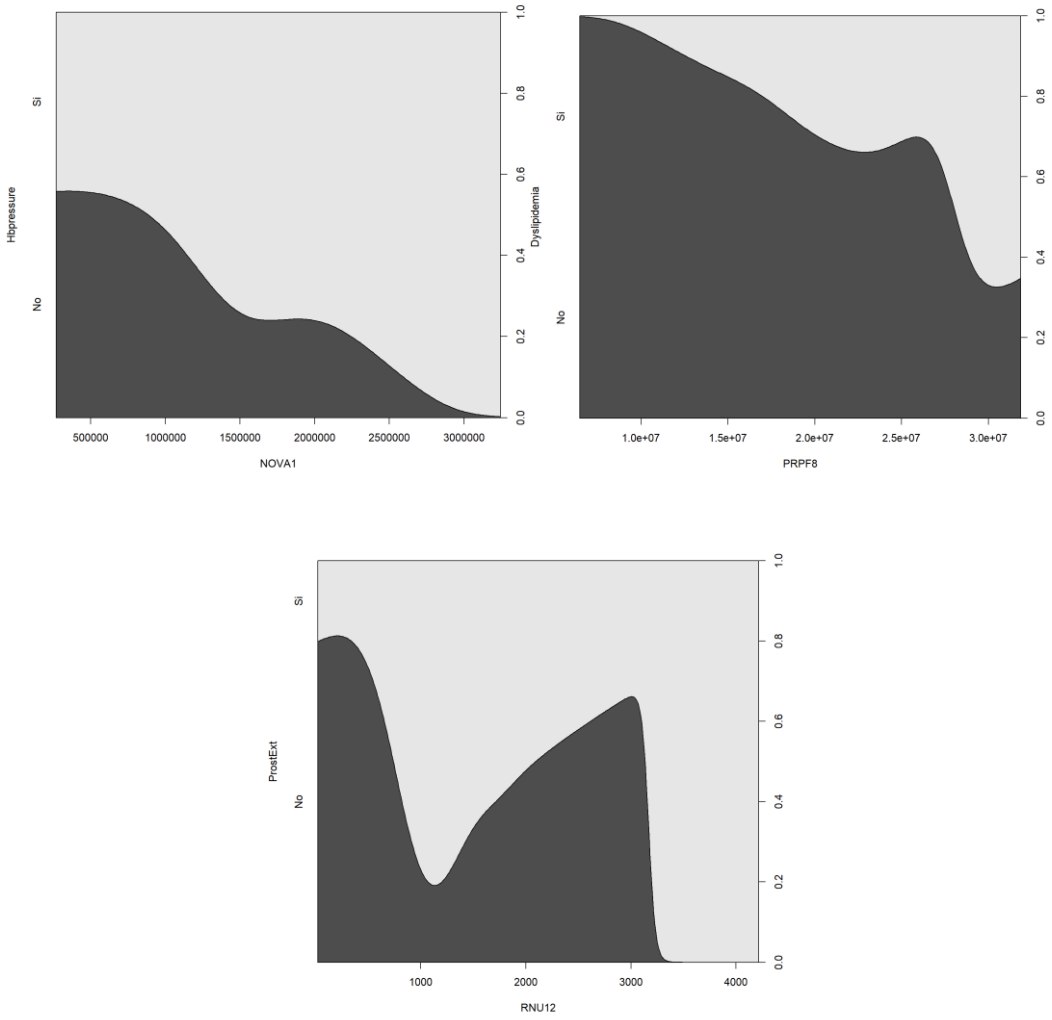
Association between numeric variables and nominal ones

Eta squared is a measure of effect size, it is analogous to r-squared. It represents the proportion of variance in Y explained by X. It can detect non-linear correlations. The following table shows the small, medium and large correlations between the genetic factors and nominal clinical factors. The genetic factors are ordered from higher to lower correlation values. No large correlations were found.

Clinical factor	**Correlations**		
	Small (0.02-0.13)	**Medium (0.13-0.26)**	**Large (>0.26)**
HB pressure	PRPF40A, SRRM4, KHDRSB1, U4ATAC, RBM3, RBM22, SFPQ, RNU11	NOVA1	
Diabetes	U4ATAC, SRSF3, RBM3, SF3B1tv1, PRPF8, SRRM1		
Dyslipidemia	KHDRSB1, NOVA1, RBM3, snRNP200, RNU11, MAGOH, RAVER1, SRRM4,	PRPF8	
ProstExt	RBM22, SFPQ, SRRM4, RNU11,	RNU12	

	PRPF40A, SRSF6, RBM3, SRRM1		
PerineuralInv	PRPF40A, U4ATAC, RBM22, RNU11, RNU12, MAGOH		

The following conditional density plots show the relationship between the genetic factors and clinical ones. We only show the medium correlations; the rest of graphs are in the folder “Correlations”. The results showed that patients with higher values in the factor NOVA1 are more likely to present an HB pressure. Also, patients with higher values in the factor RNU12 are more likely to have a prost. ext.



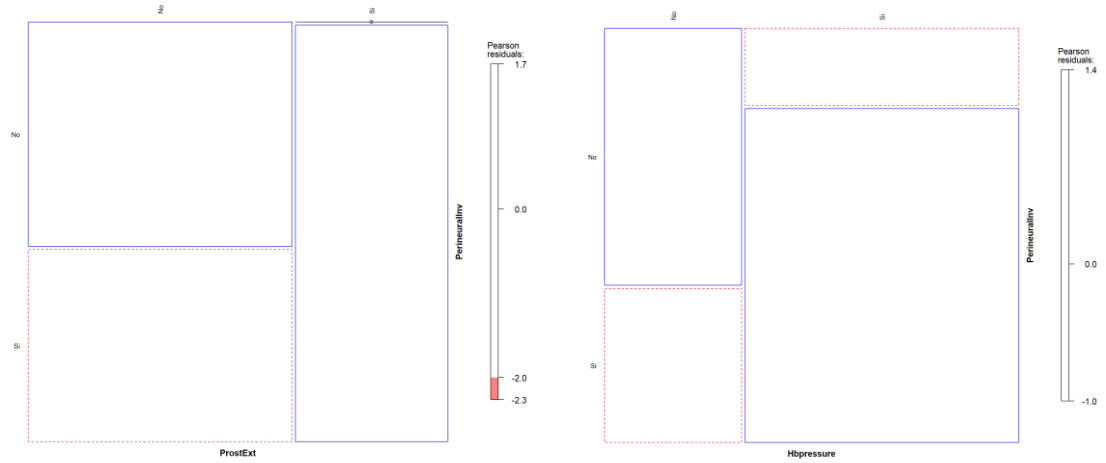
Association between nominal clinical factors

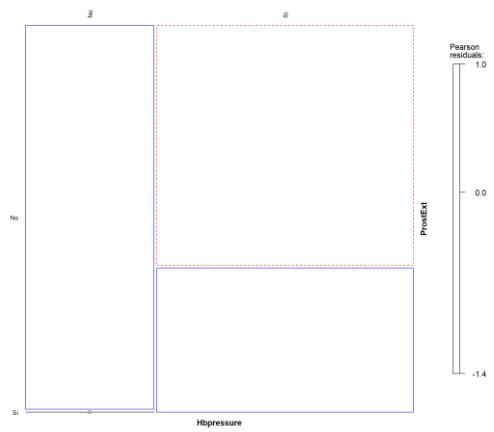
Cramer's V is the most popular of the chi-square-based measures of nominal association because it gives good norming from 0 to 1 regardless of table size. In practice, you may find that a Cramer's V of .10 provides a good minimum threshold for suggesting there is a substantive relationship between two nominal variables.

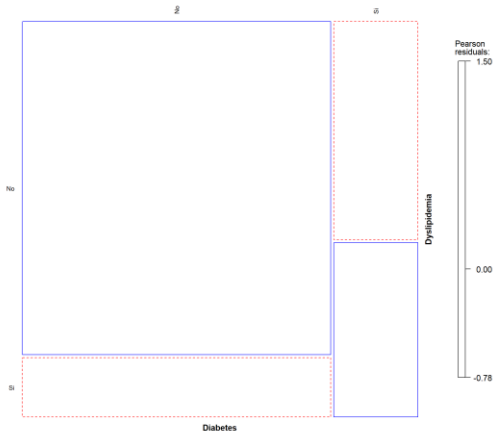
The following table shows the pairs of variables that have a Cramer's V greater than 0.10. The rest of the pairs were discarded.

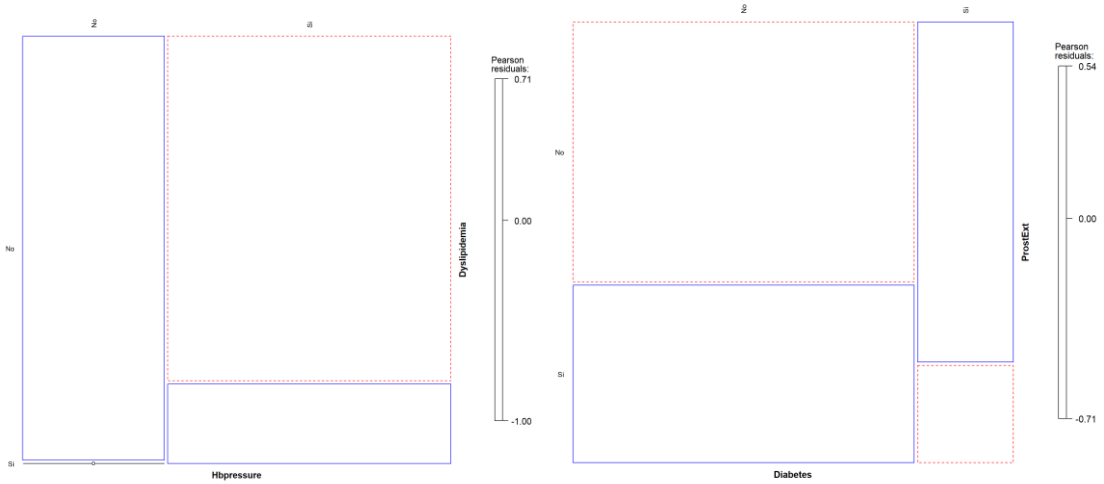
Pair	Cramer's V
ProstExt vs PerineuralInv	0.547
Hbpressure vs PerineuralInv	0.437
Hbpressure-ProstExt	0.408
Diabetes vs Dyslipidemia	0.293
Hbpressure vs Dyslipidemia	0.267
Diabetes vs ProstExt	0.158

The following mosaic plots show the distributions of the category levels between the nominal variables. As a matter of example, the results show that a major number of patients that don't have diabetes also don't have dyslipidemia….








No
Si
Dyslipidemia
Hbpressure
Pearson residuals:
0.71
0.00
-1.00
No
Si
ProstExt
Diabetes
Pearson residuals:
0.54
0.00
-0.71