

Partial Correlation Analysis

X variable: G1
 Y variable: G3
 Control variable(s): G2
 N complete: 649
 Zero-order r: 0.826387
 Partial r: 0.160611
 t value: 4.135860
 df: 646
 Two-tailed p-value: 0.00004003
 Decision: Significant partial relationship

Descriptive statistics:

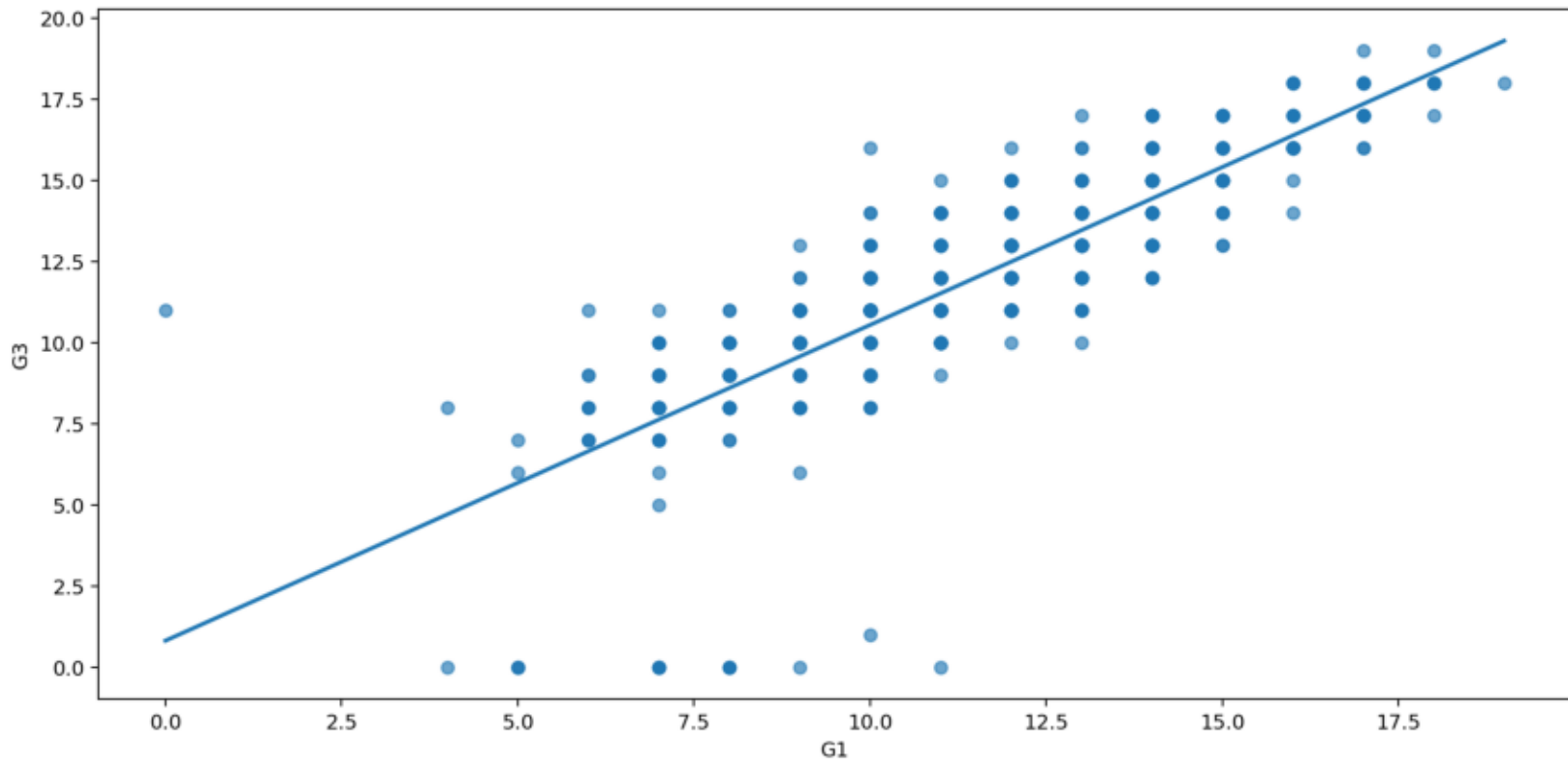
variable	n	mean	standard_deviation	variance	minimum	maximum	skewness	kurtosis
G1	649	11.399076	2.745265	7.536481	0.0	19.0	-0.002774	0.036638
G3	649	11.906009	3.230656	10.437140	0.0	19.0	-0.912909	2.712204
age	649	16.744222	1.218138	1.483859	15.0	22.0	0.416795	0.071509
studytime	649	1.930663	0.829510	0.688086	1.0	4.0	0.699619	0.037846
failures	649	0.221880	0.593235	0.351928	0.0	3.0	3.092699	9.824409
absences	649	3.659476	4.640759	21.536642	0.0	32.0	2.020694	5.781078
Medu	649	2.514638	1.134552	1.287208	0.0	4.0	-0.029950	-1.260619
Fedu	649	2.306626	1.099931	1.209848	0.0	4.0	0.215343	-1.109241
G2	649	11.570108	2.913639	8.489290	0.0	19.0	-0.360283	1.662465

Pairwise partial correlations:

x_variable	y_variable	controls	n_complete	partial_correlation	p_value_two_tailed	decision_alpha_0_05
G1	G3	G2	649	0.160611	4.003444e-05	Significant
G1	age	G2	649	-0.163687	2.826370e-05	Significant
G1	studytime	G2	649	0.108503	5.694662e-03	Significant
G1	failures	G2	649	-0.109115	5.426380e-03	Significant
G1	absences	G2	649	-0.078828	4.486906e-02	Significant
G1	Medu	G2	649	0.066295	9.175788e-02	Not significant
G1	Fedu	G2	649	0.046551	2.366736e-01	Not significant
G3	age	G2	649	-0.020638	6.000045e-01	Not significant
G3	studytime	G2	649	0.075265	5.549842e-02	Not significant
G3	failures	G2	649	-0.106814	6.496929e-03	Significant
G3	absences	G2	649	0.059163	1.324620e-01	Not significant
G3	Medu	G2	649	-0.006238	8.740766e-01	Not significant
G3	Fedu	G2	649	0.012978	7.415874e-01	Not significant
age	studytime	G2	649	0.017975	6.478750e-01	Not significant
age	failures	G2	649	0.303771	2.671323e-15	Significant
age	absences	G2	649	0.138508	4.060887e-04	Significant
age	Medu	G2	649	-0.082953	3.475567e-02	Significant
age	Fedu	G2	649	-0.100064	1.081287e-02	Significant
studytime	failures	G2	649	-0.061039	1.206061e-01	Not significant
studytime	absences	G2	649	-0.091778	1.945427e-02	Significant

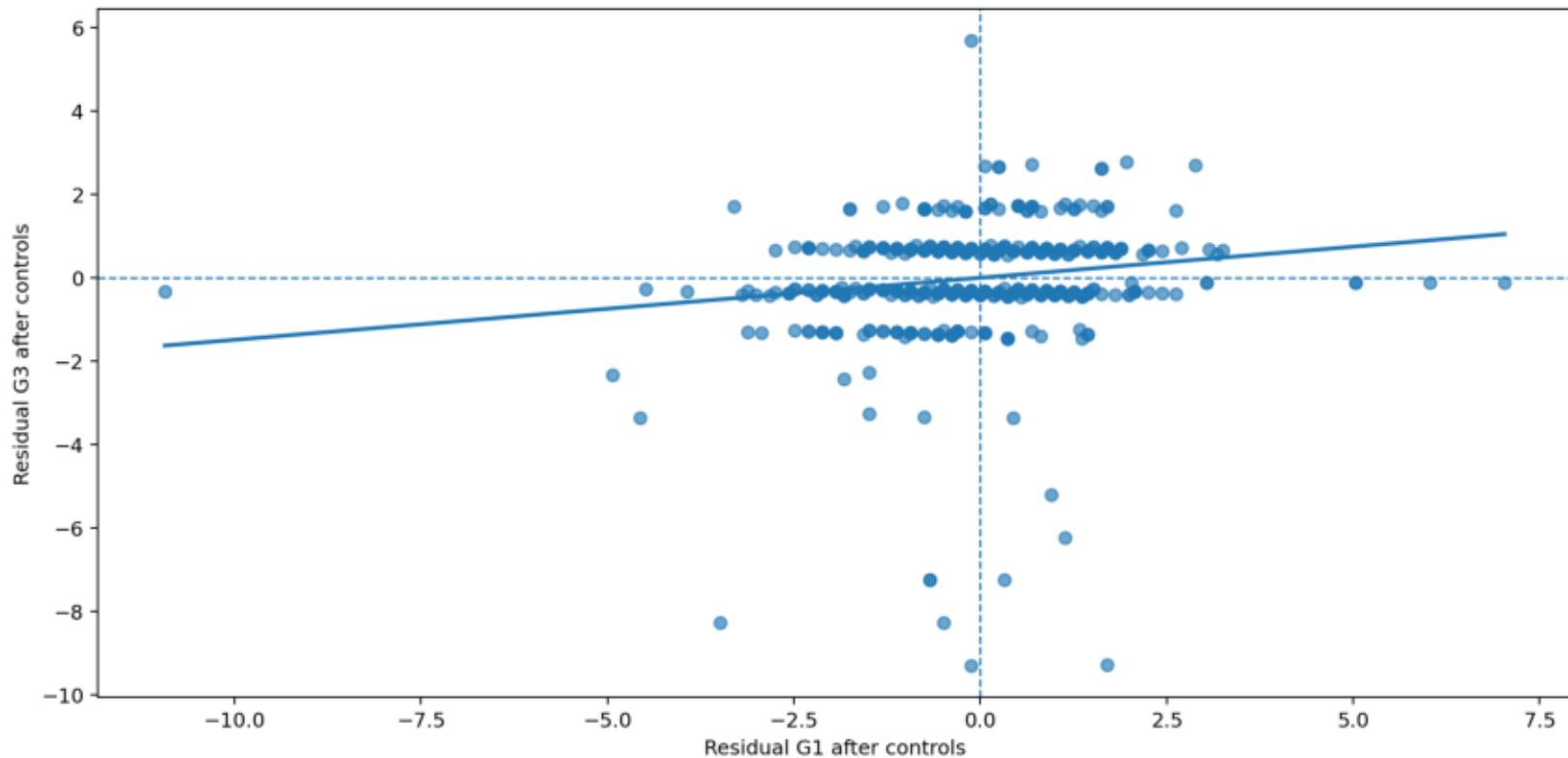
Partial Correlation: Zero-order Scatterplot

Raw relationship before controlling covariates; $r = 0.8264$.



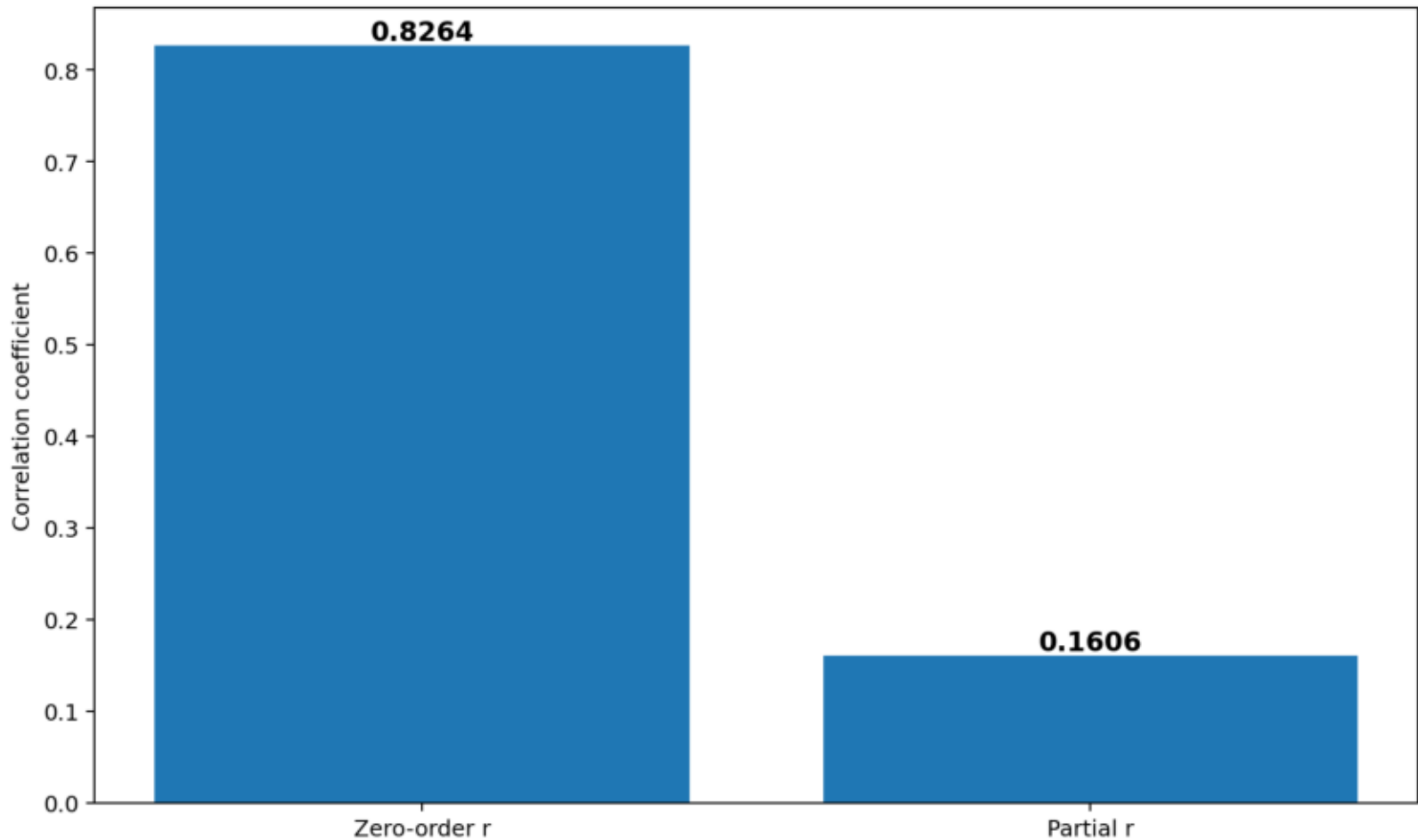
Partial Correlation: Residual Relationship

Relationship after controlling G2; partial $r = 0.1606$.



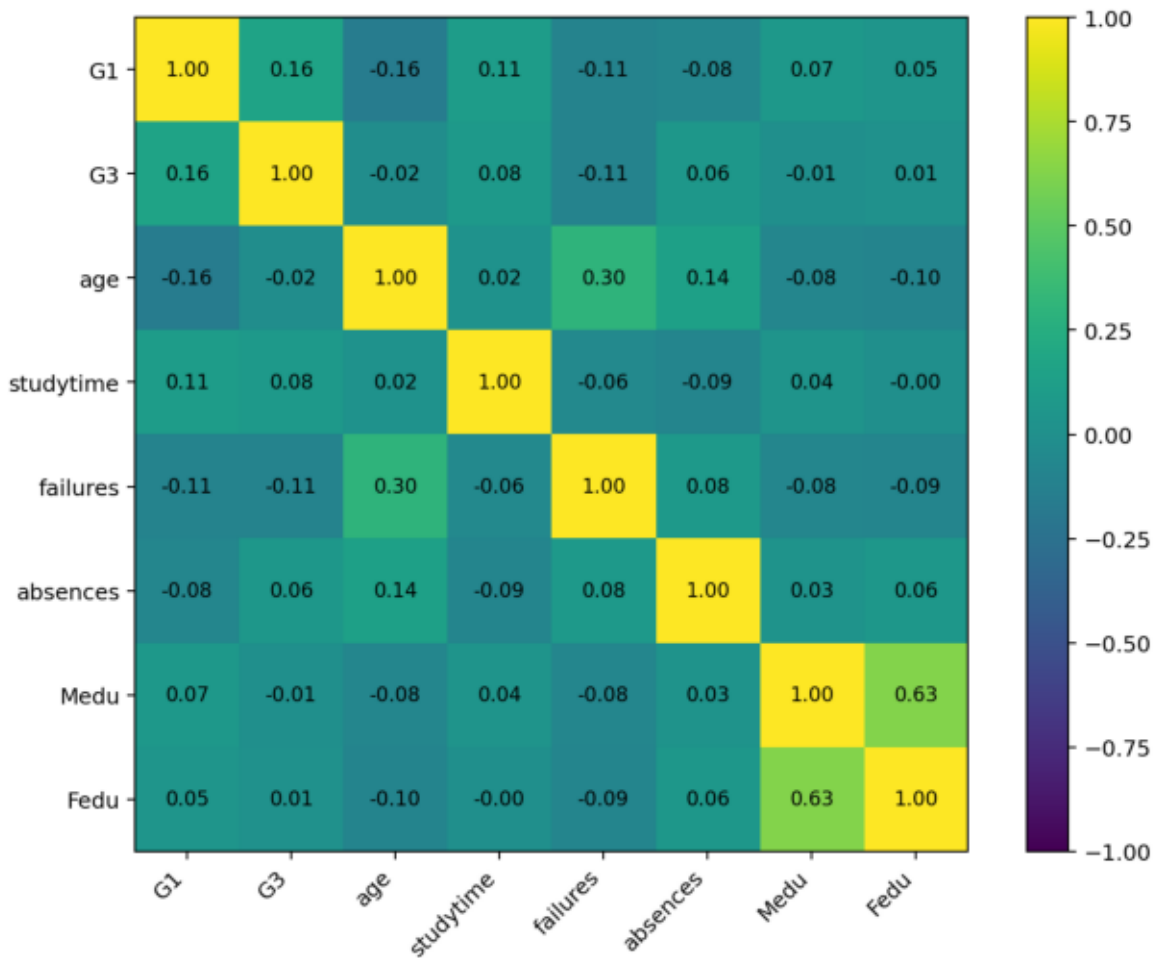
Partial Correlation: Before and After Control

The partial coefficient shows the remaining association after removing control-variable influence.



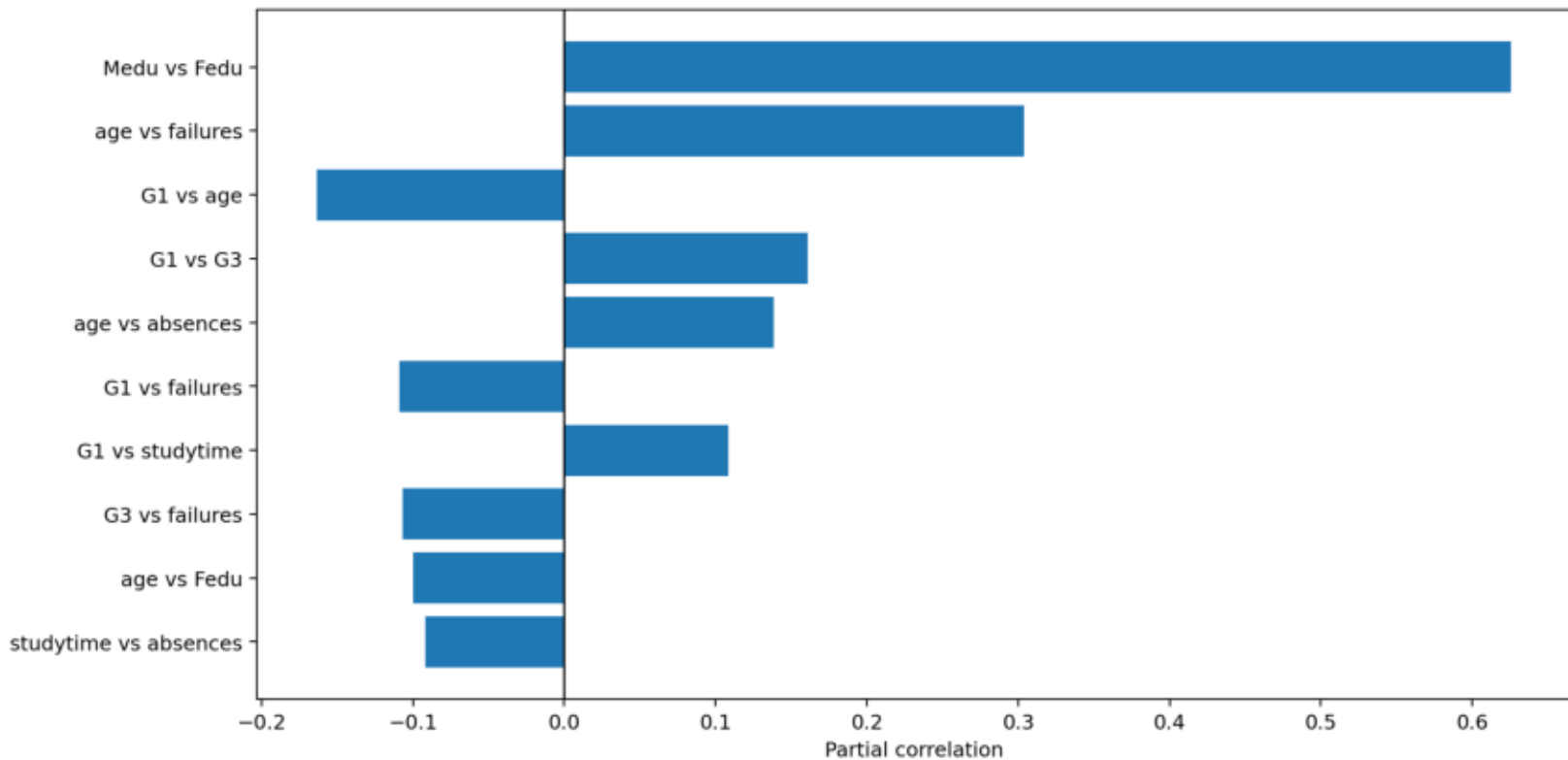
Partial Correlation Matrix

Each value controls the selected covariate set.



Largest Pairwise Partial Correlations

Top absolute partial correlations among selected numeric variables.



Partial Correlation p-values

Comparisons to the left of alpha are statistically significant at the 5% level.

