

Polychoric Correlation Analysis

Variables: Medu, Fedu, traveltime, studytime, failures, famrel, freetime, goout, Dalc, Walc, health

Complete ordinal cases: 649

Top associations:

variable_1	variable_2	polychoric_correlation	approx_p_value	pairwise_n	absolute_correlation	direction	decision	alpha	0_05
Dalc	Walc	0.774611	7.332129e-131	649	0.774611	Positive	Significant		
Medu	Fedu	0.703698	4.072136e-98	649	0.703698	Positive	Significant		
goout	Walc	0.434939	2.474917e-31	649	0.434939	Positive	Significant		
freetime	goout	0.379256	1.246915e-23	649	0.379256	Positive	Significant		
goout	Dalc	0.321652	4.361300e-17	649	0.321652	Positive	Significant		
Medu	traveltime	-0.321020	5.058620e-17	649	0.321020	Negative	Significant		
Medu	failures	-0.316649	1.398968e-16	649	0.316649	Negative	Significant		
Fedu	traveltime	-0.270846	2.247176e-12	649	0.270846	Negative	Significant		
studytime	Walc	-0.267888	3.958854e-12	649	0.267888	Negative	Significant		
studytime	failures	-0.267119	4.582369e-12	649	0.267119	Negative	Significant		
Fedu	failures	-0.259749	1.815388e-11	649	0.259749	Negative	Significant		
studytime	Dalc	-0.216689	2.461036e-08	649	0.216689	Negative	Significant		

Variable summary:

variable	n	minimum	maximum	ordered levels	number_of_levels	mean_numeric_code	standard_deviation_numeric_code	thresholds	z	internal
Medu	649	0	4	0, 1, 2, 3, 4	5	2.514638	1.134552	-2.3557,	-0.7402,	0.0406, 0.6139
Fedu	649	0	4	0, 1, 2, 3, 4	5	2.306626	1.099931	-2.2978,	-0.5861,	0.2557, 0.8516
traveltime	649	1	4	1, 2, 3, 4	4	1.568567	0.748660		0.1610,	1.2380, 1.9659
studytime	649	1	4	1, 2, 3, 4	4	1.930663	0.829510		-0.4492,	0.8296, 1.6079
failures	649	0	3	0, 1, 2, 3	4	0.221880	0.593235		1.0191,	1.6826, 2.0223
famrel	649	1	5	1, 2, 3, 4, 5	5	3.930663	0.955717	-1.8264,	-1.4147,	-0.7251, 0.5907
freetime	649	1	5	1, 2, 3, 4, 5	5	3.180277	1.051093	-1.4807,	-0.7251,	0.3080, 1.2548
goout	649	1	5	1, 2, 3, 4, 5	5	3.184900	1.175766	-1.4469,	-0.5319,	0.2878, 0.9562
Dalc	649	1	5	1, 2, 3, 4, 5	5	1.502311	0.924834	0.5098,	1.1818,	1.6221, 1.9399
Walc	649	1	5	1, 2, 3, 4, 5	5	2.280431	1.284380	-0.3039,	0.2838,	0.8296, 1.4807
health	649	1	5	1, 2, 3, 4, 5	5	3.536210	1.446259	-1.0863,	-0.6469,	-0.1259, 0.2959

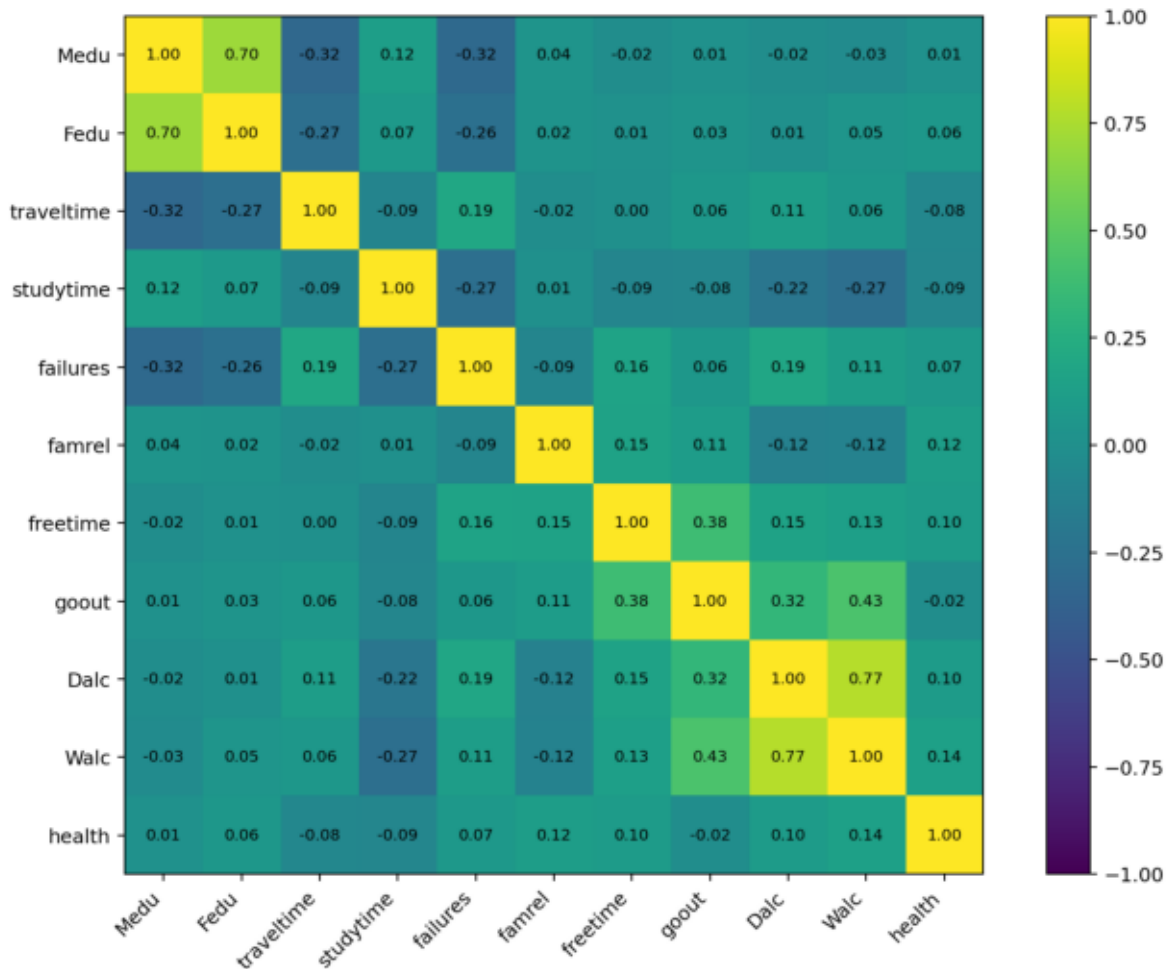
Method note:

Polychoric correlations are estimated with a two-step threshold method and bivariate-normal maximum likelihood.

Approximate p-values use a large-sample t approximation for reporting context.

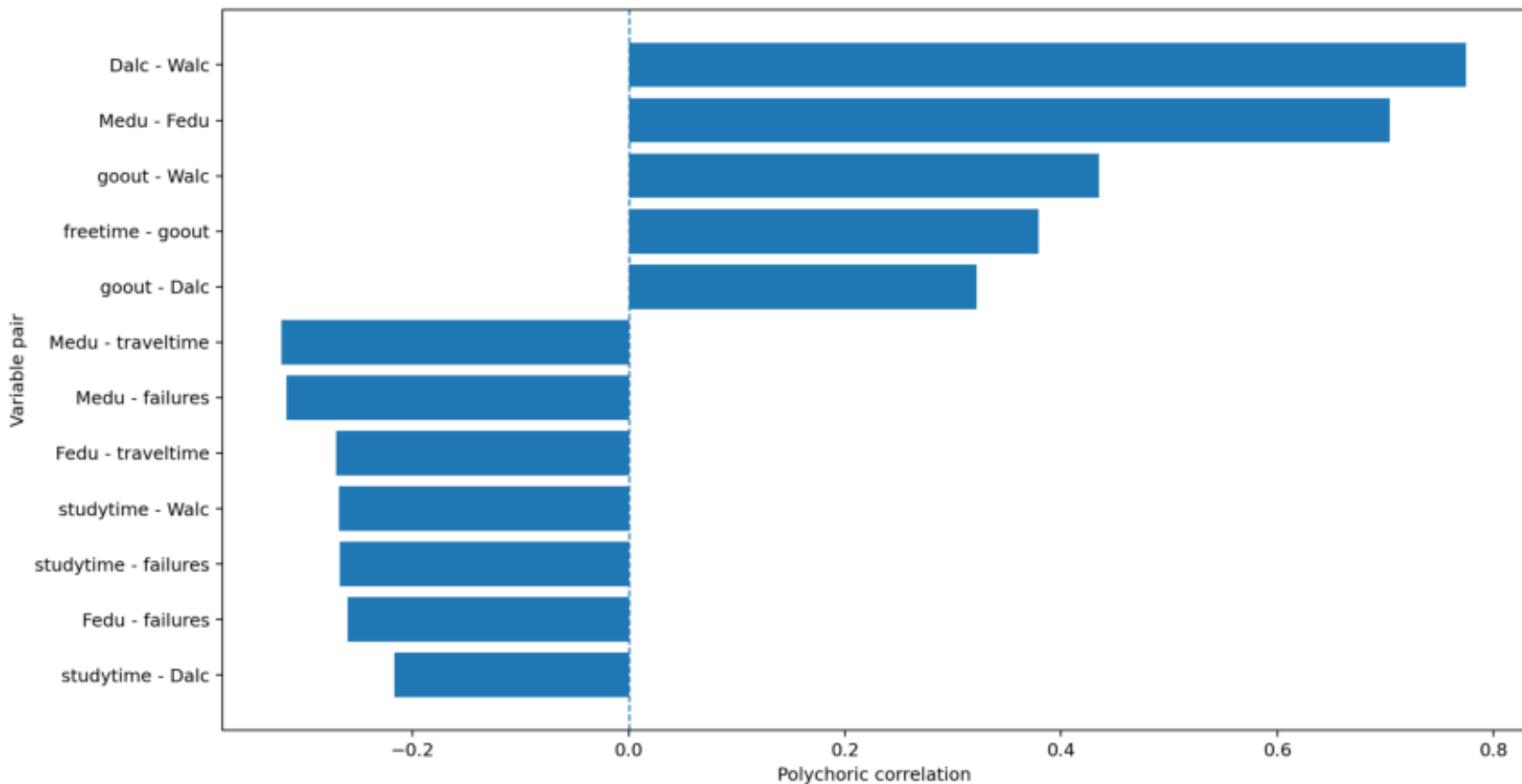
Polychoric Correlation Matrix

Estimated latent correlations among ordered categorical variables.



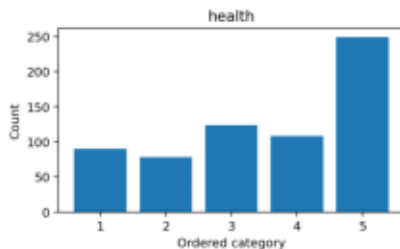
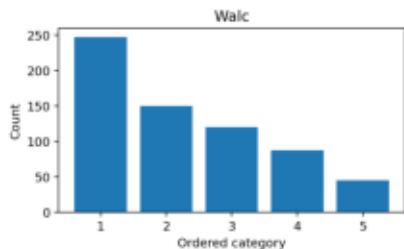
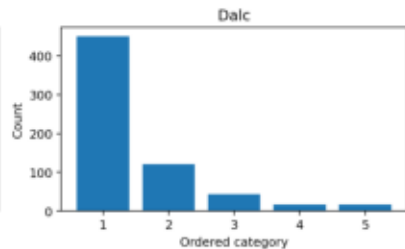
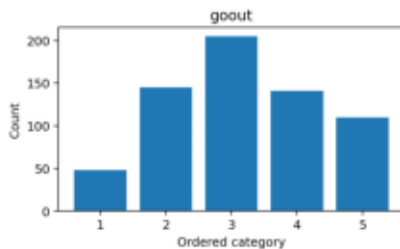
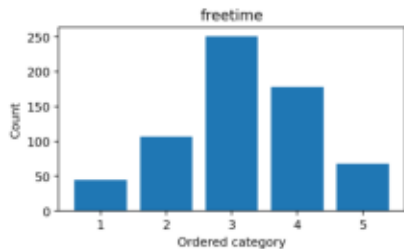
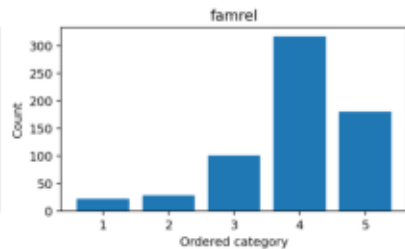
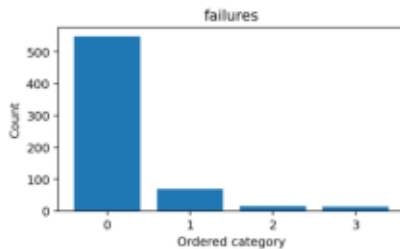
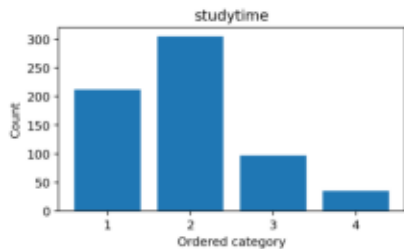
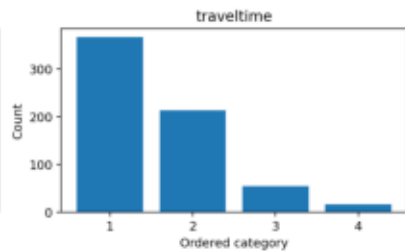
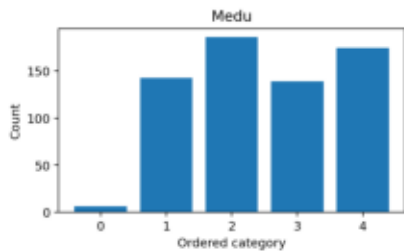
Strongest Polychoric Correlations

Pairs are ranked by absolute latent correlation strength.



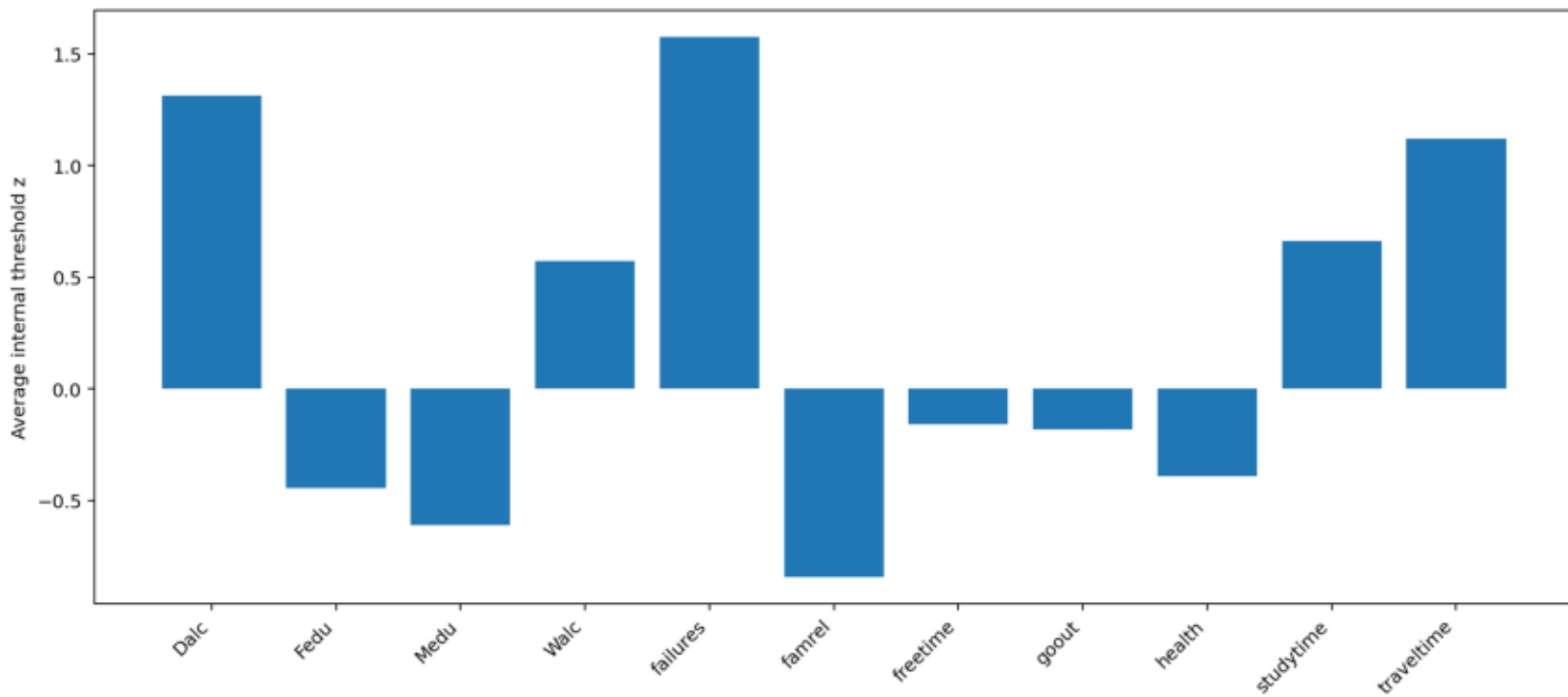
Ordinal Variable Distributions

Each panel shows category counts used to estimate latent thresholds.



Average Internal Threshold Position

Thresholds translate observed ordinal categories into latent normal cut-points.



Polychoric vs Spearman Comparison

Polychoric correlation estimates the latent bivariate-normal association behind ordinal responses.

