

Odd-Even Split-Half Reliability

Standalone verified Python analysis

Test: Odd-Even Split-Half Reliability

Design: A fixed balanced split of the six transformed items into two three-item half scores.

Variables: half A: famrel, goout, Walc_R, half B: freetime, Dalc_R, health

Null hypothesis: The two fixed half scores are uncorrelated and have no full-length reliability.

Formula: $r_{half} = \text{cor}(H_A, H_B)$; $\rho_{SB} = 2r / (1 + r)$; $\lambda_4 = 2[1 - (s_A^2 + s_B^2) / s_{total}^2]$.

Source rows: 649

Calculated metrics:

half_correlation: 0.23638019152351483

spearman_brown_corrected: 0.3823746015086802

guttman_lambda_4: 0.380732663549638

n_cases: 649

items_per_half: 3

Independent reference values:

half_correlation: 0.23638019152351483

spearman_brown_corrected: 0.3823746015086802

guttman_lambda_4: 0.380732663549638

n_cases: 649

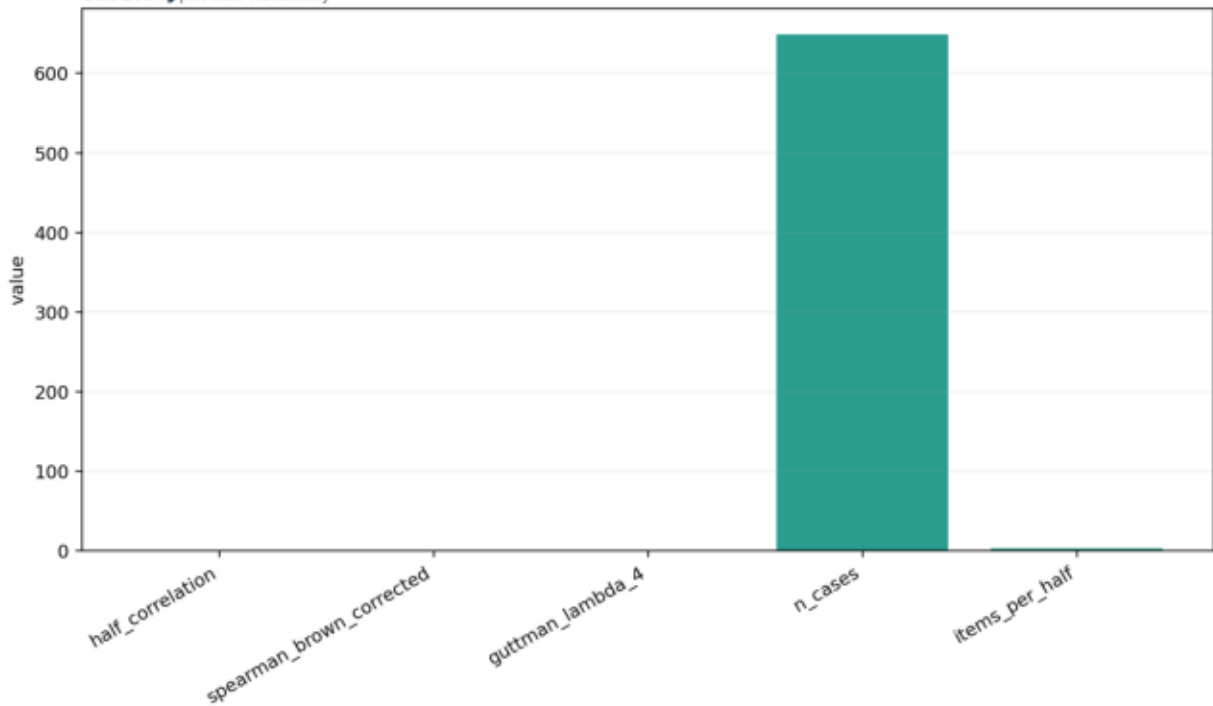
items_per_half: 3

Interpretation:

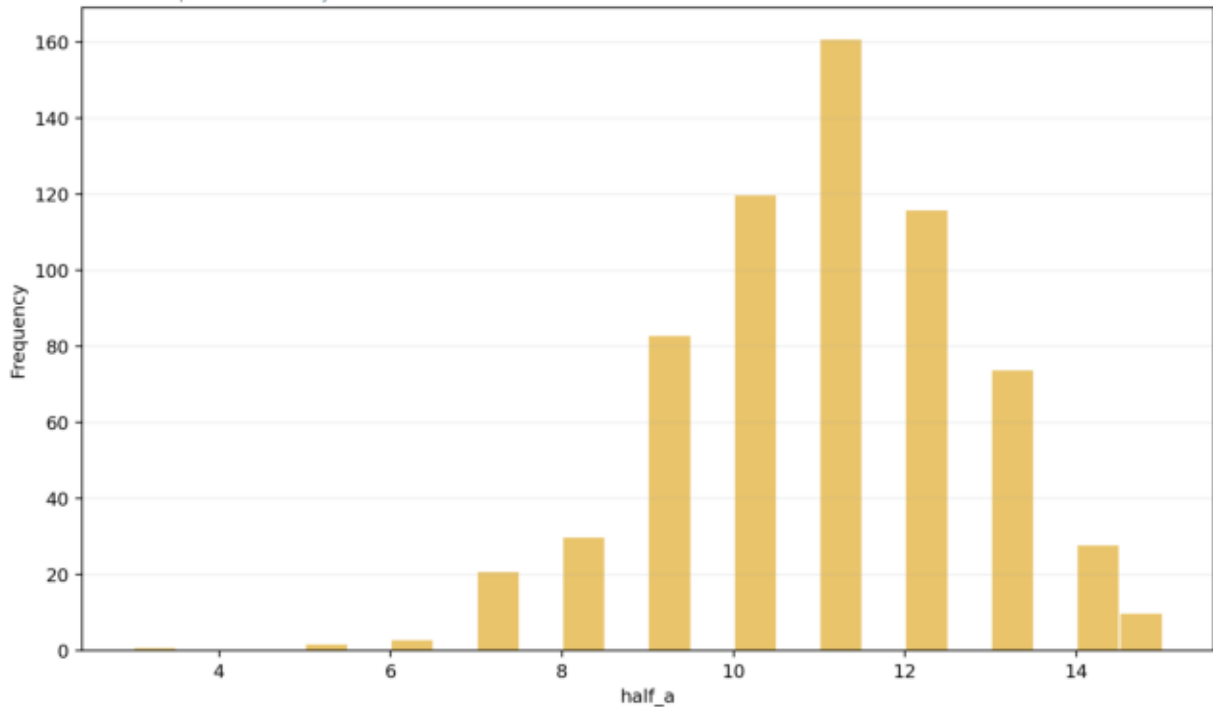
The odd-even-style item allocation is fixed before scores are correlated.

Spearman-Brown corrected split reliability=0.382375.

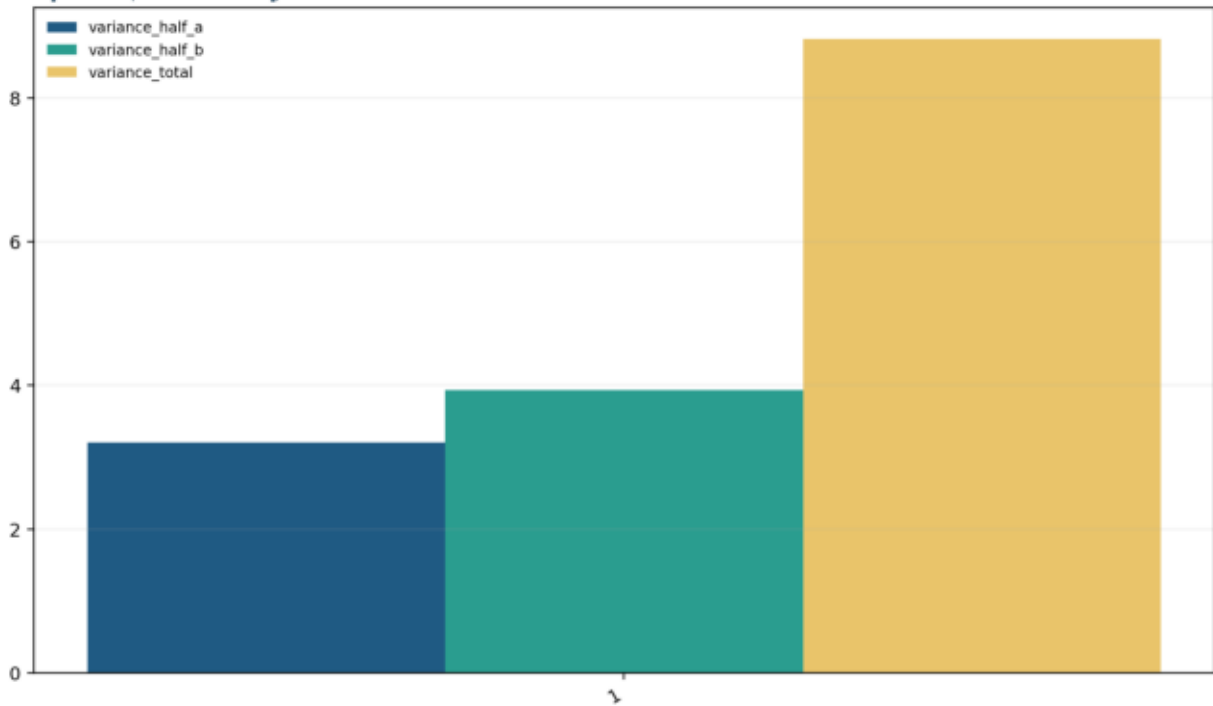
Primary Metrics



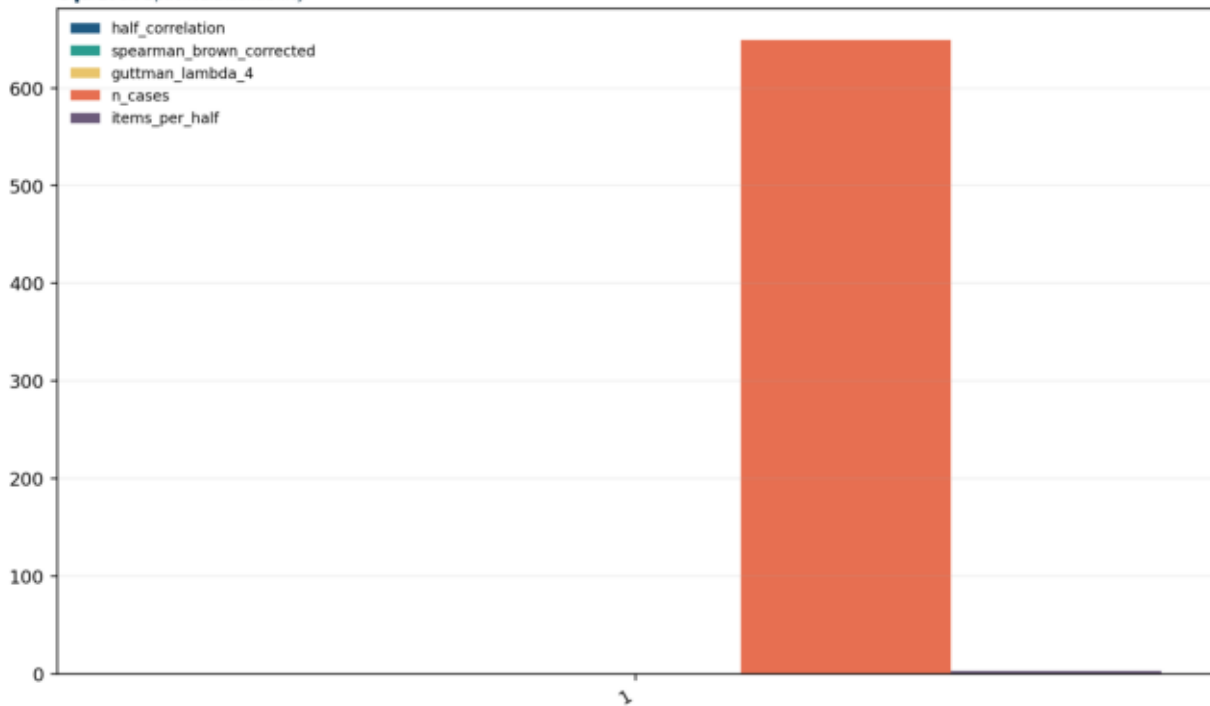
Fixed Half Scores



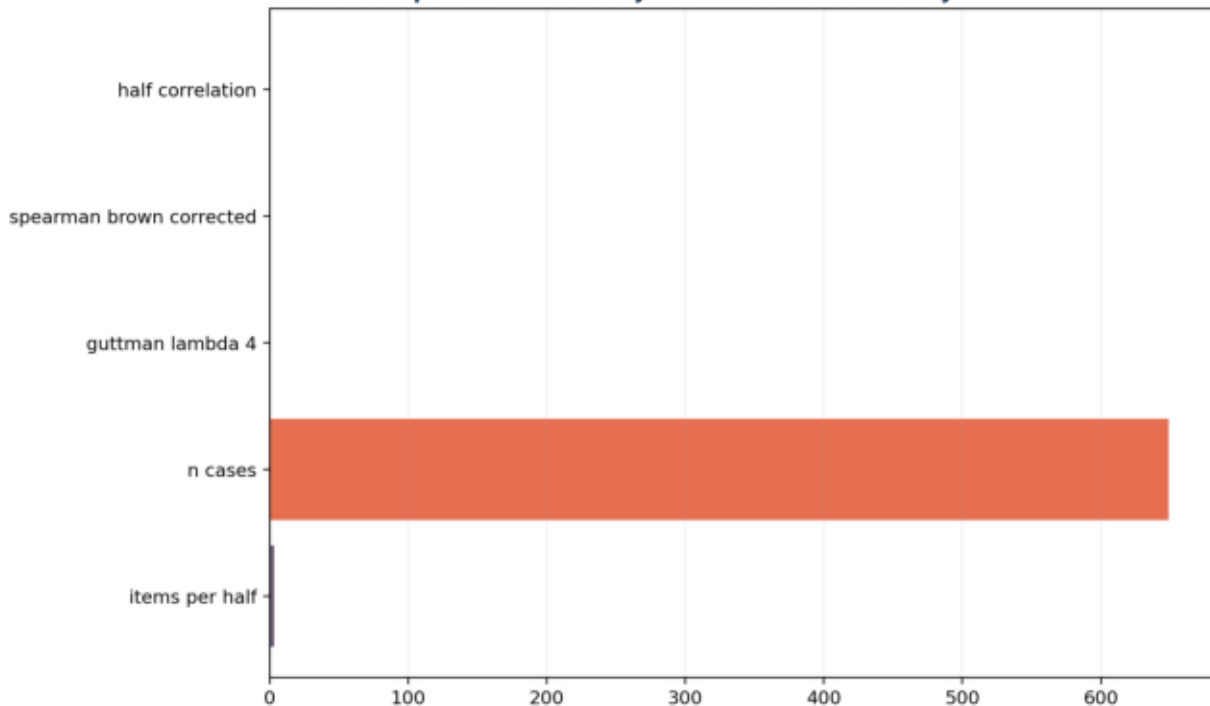
Split Variance Components



Split Half Result



Odd-Even Split-Half Reliability verified result summary



Primary Metrics

metric	value
half_correlation	0.23638
spearman_brown_corrected	0.382375
guttman_lambda_4	0.380733
n_cases	649
items_per_half	3

Fixed Half Scores

half_a	half_b	total
13	11	24
13	11	24
9	10	19
10	12	22
10	13	23
11	14	25
13	12	25
13	7	20
11	8	19
11	15	26
10	10	20
12	11	23
10	13	23
12	12	24
11	13	24
12	11	23
10	9	19
12	12	24
12	14	26
9	11	20
10	10	20
12	14	26
8	15	23
11	13	24
11	13	24
6	12	18

Split Variance Components

variance_half_a	variance_half_b	variance_total
3.20271	3.93708	8.81855

Split Half Result

half_correlation	spearman_brown_corrected	guttman_lambda_4	n_cases	items_per_half
0.23638	0.382375	0.380733	649	3