

Item-Total Correlation

Standalone verified Python analysis

Test: Item-Total Correlation

Design: Each transformed item correlated with the full six-item total that includes that item.

Variables: famrel, freetime, goout, Dalc_R, Walc_R, health

Null hypothesis: An item has zero linear association with the full composite score.

Formula: $r_{i,\text{total}} = \text{cor}(X_i, \sum_j X_j)$.

Source rows: 649

Calculated metrics:

mean_item_total_r: 0.4368562244557915

minimum_item_total_r: 0.29528130393217883

maximum_item_total_r: 0.5204850891945428

items: 6

Independent reference values:

mean_item_total_r: 0.4368562244557915

minimum_item_total_r: 0.29528130393217883

maximum_item_total_r: 0.5204850891945428

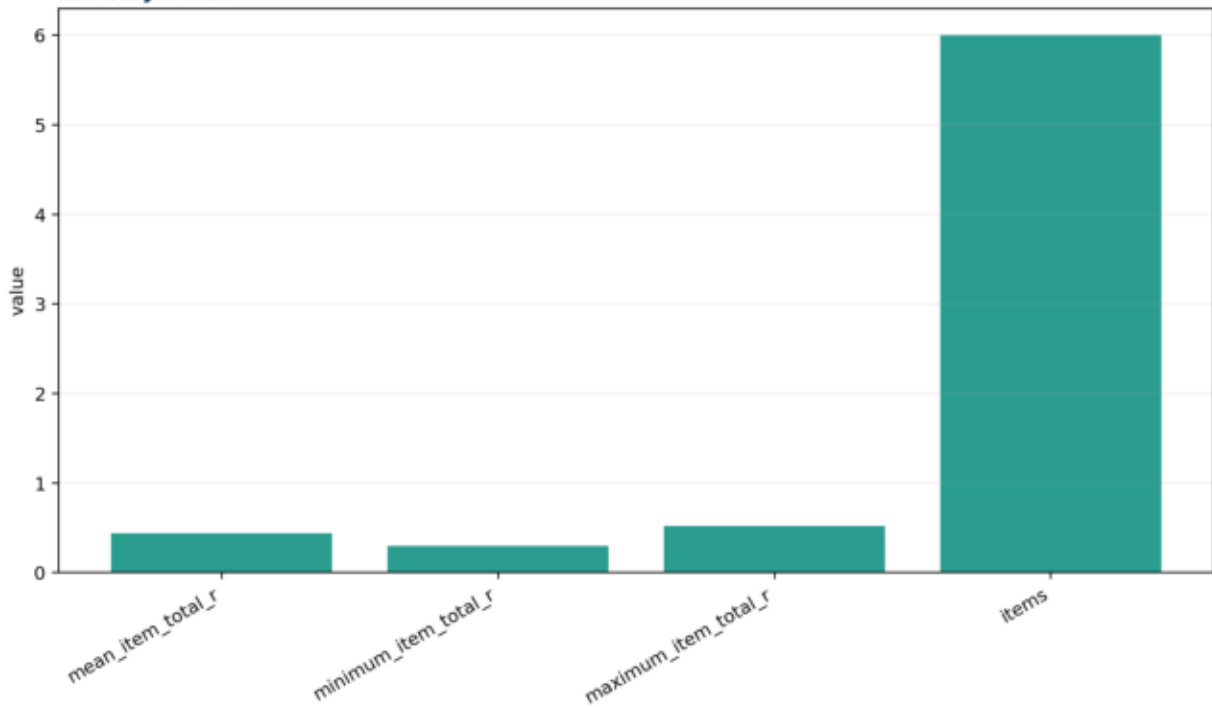
items: 6

Interpretation:

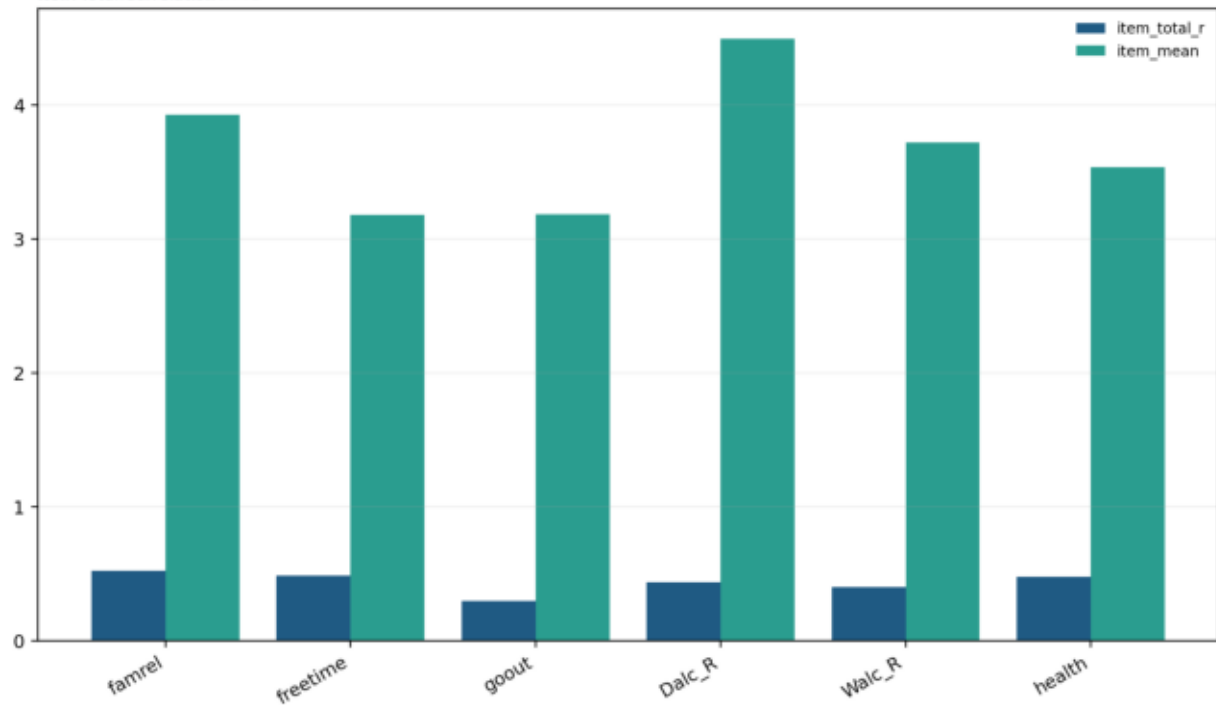
The item remains inside the full total, creating the intended part-whole correlation.

Mean item-total $r=0.436856$.

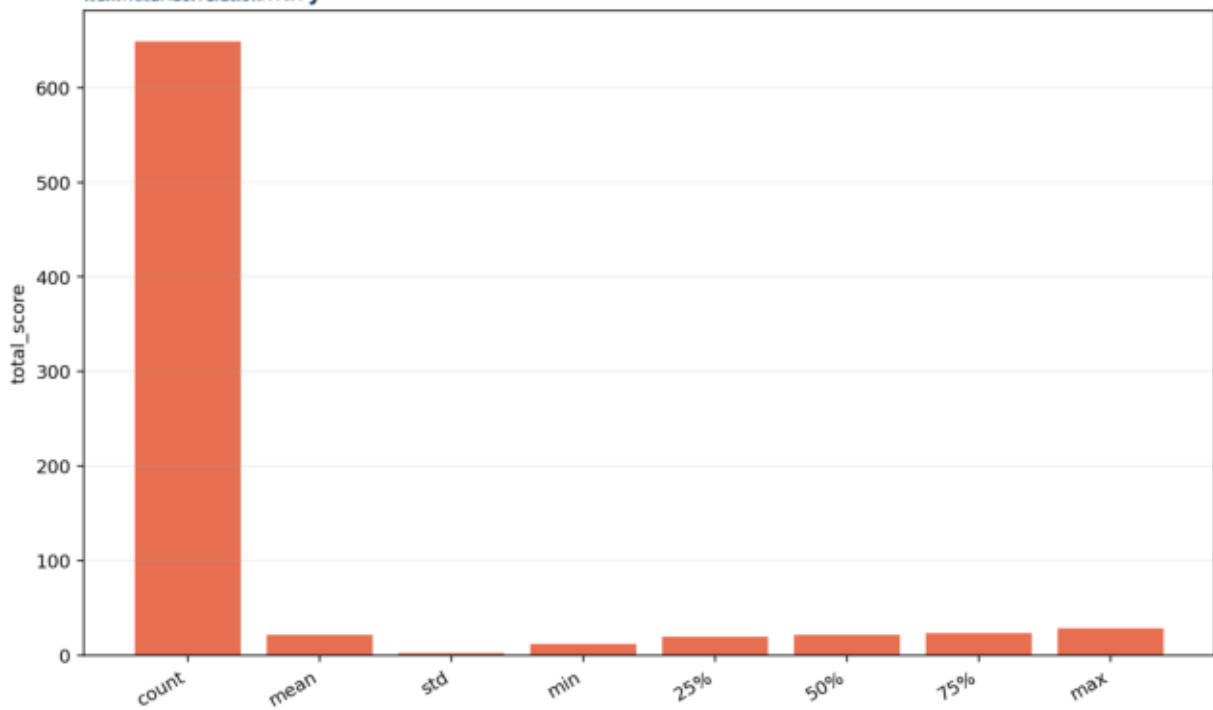
Primary Metrics



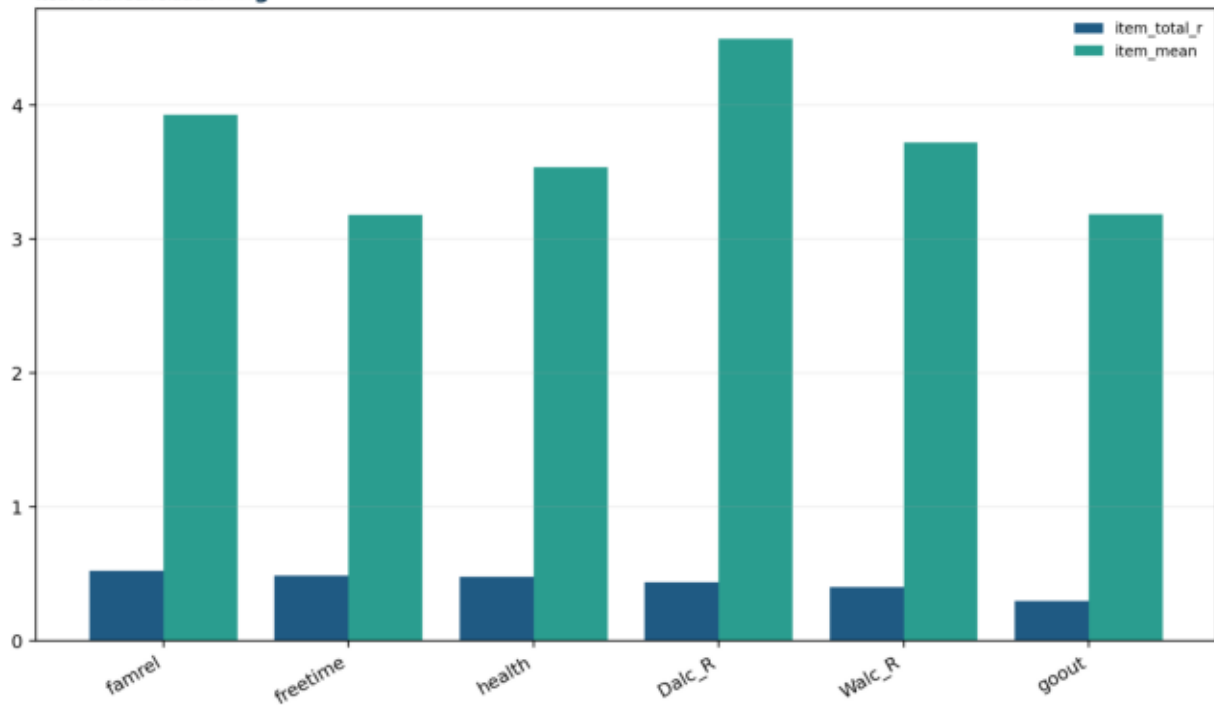
Item Total Results



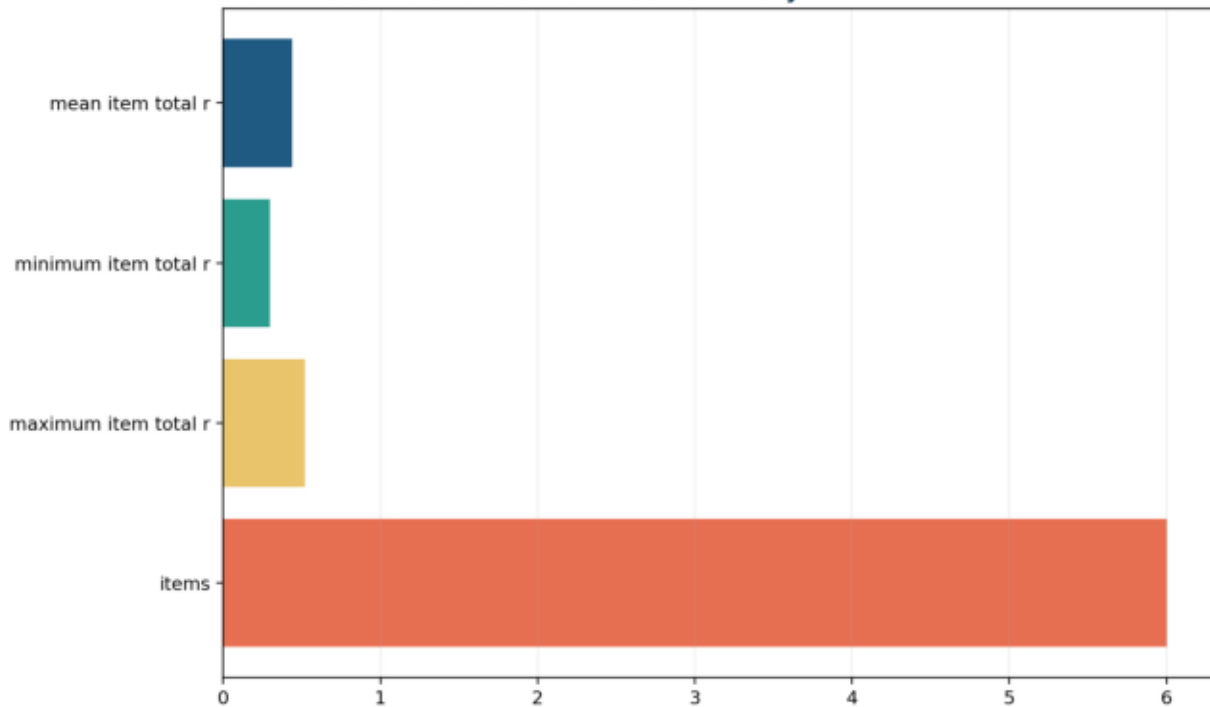
Full Total Summary



Item Total Ranking



Item-Total Correlation verified result summary



Primary Metrics

metric	value
mean_item_total_r	0.436856
minimum_item_total_r	0.295281
maximum_item_total_r	0.520485
items	6

Item Total Results

item	item_total_r	item_mean
famrel	0.520485	3.93066
freetime	0.4876	3.18028
goout	0.295281	3.1849
Dalc_R	0.437765	4.49769
Walc_R	0.402168	3.71957
health	0.477837	3.53621

Full Total Summary

index	total_score
count	649
mean	22.0493
std	2.9696
min	12
25%	20
50%	22
75%	24
max	29

Item Total Ranking

item	item_total_r	item_mean
famrel	0.520485	3.93066
freetime	0.4876	3.18028
health	0.477837	3.53621
Dalc_R	0.437765	4.49769
Walc_R	0.402168	3.71957
goout	0.295281	3.1849