

Likert Scale Data Analysis

Standalone verified Python analysis

Method: Likert Scale Data Analysis

Method type: scale_analysis

Design: Integrated scoring, distribution, reliability, item diagnostics, and interpretable score bands for a six-item scale.

Variables: famrel, freetime, goout, Dalc, Walc, health

Inference scope: No single omnibus hypothesis test is imposed; the scale is evaluated through scoring, distribution, alpha, omega, and item-total evidence.

Formula: $score_i = \text{mean}(\text{aligned items})$; $\alpha = k / (k - 1) * (1 - \sum(s_i^2) / s_{total}^2)$;
 $\omega = (\sum(\lambda))^2 / [(\sum(\lambda))^2 + \sum(\theta)]$.

Source rows: 649

Calculated metrics:

scale_mean: 3.674884437596302
scale_median: 3.6666666666666665
scale_sd: 0.49493413588832214
cronbach_alpha: 0.1117626312468654
omega_total: 0.020155382121447452
high_score_percent: 69.79969183359015
respondents: 649

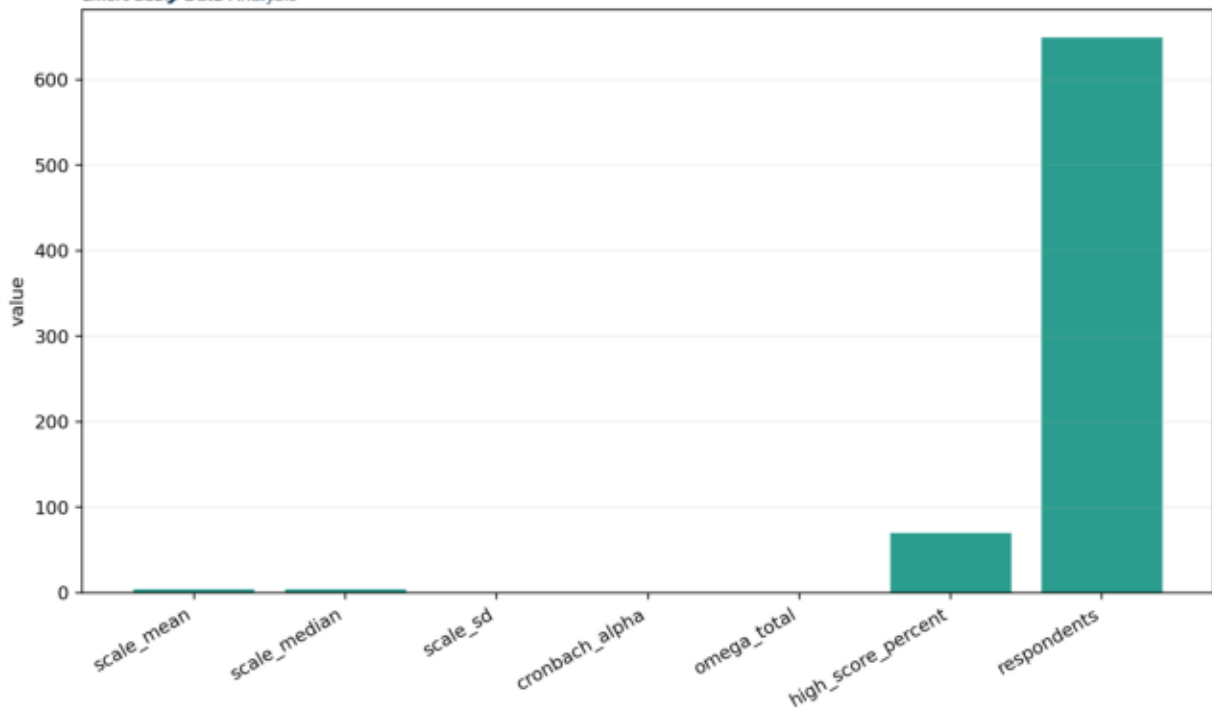
Independent reference values:

scale_mean: 3.674884437596302
scale_median: 3.6666666666666665
scale_sd: 0.49493413588832214
cronbach_alpha: 0.1117626312468654
omega_total: 0.020155382121447452
high_score_percent: 69.79969183359015
respondents: 649

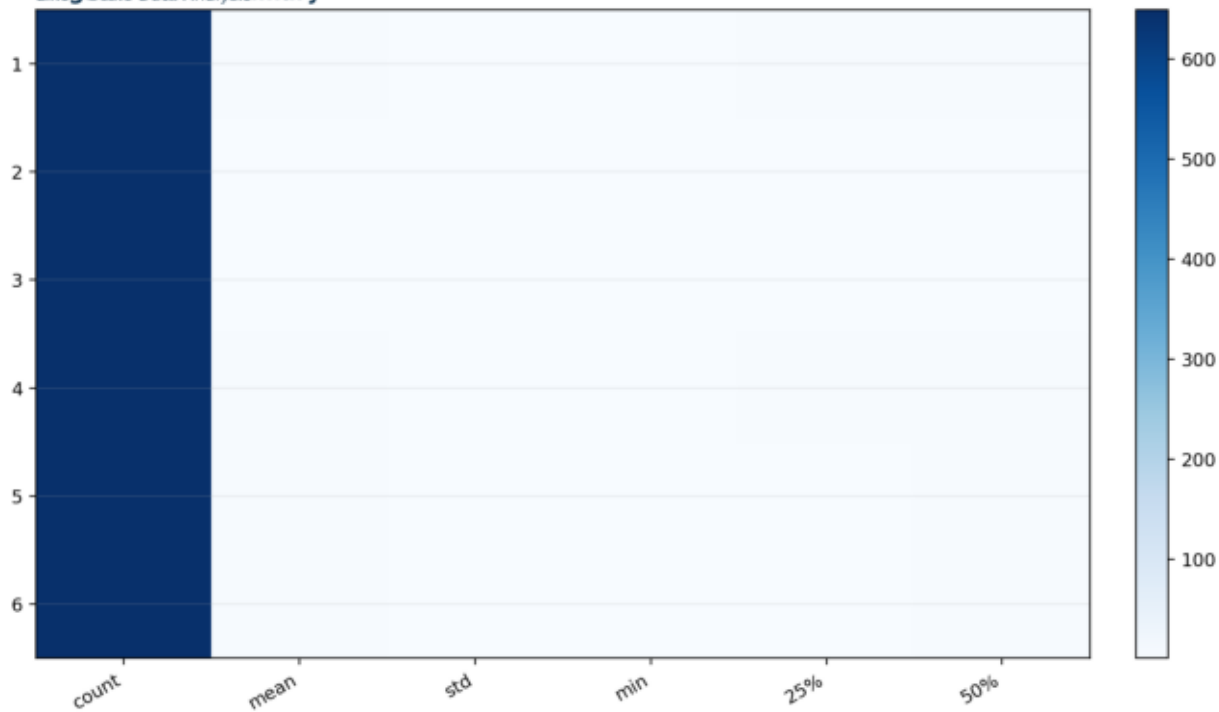
Interpretation:

The workflow integrates aligned scoring, score distribution, alpha, omega, and item diagnostics.
Scale mean=3.674884; omega=0.020155.

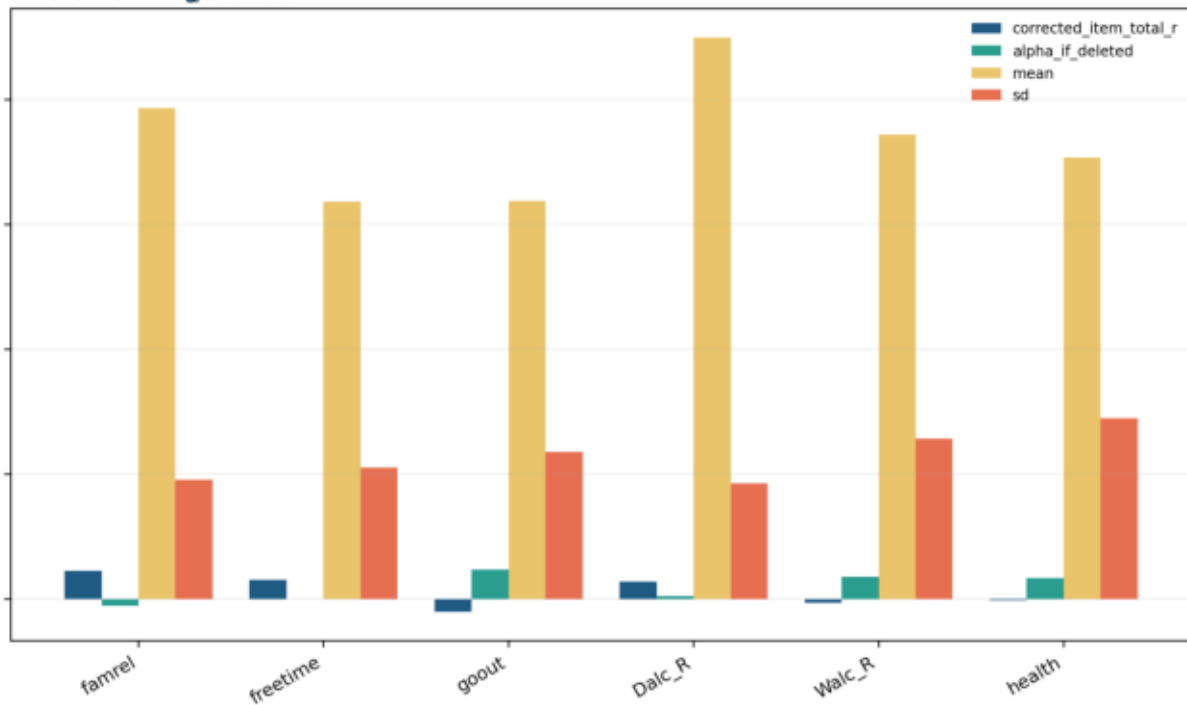
Primary Metrics



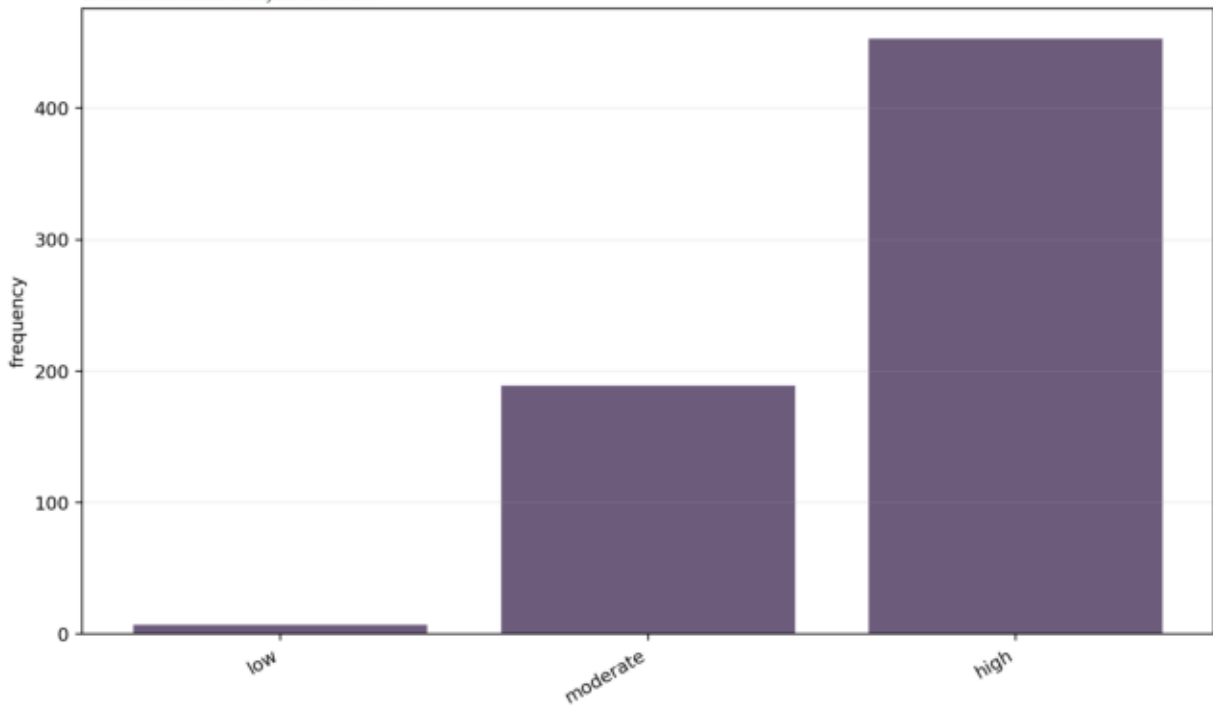
Aligned Item Summary



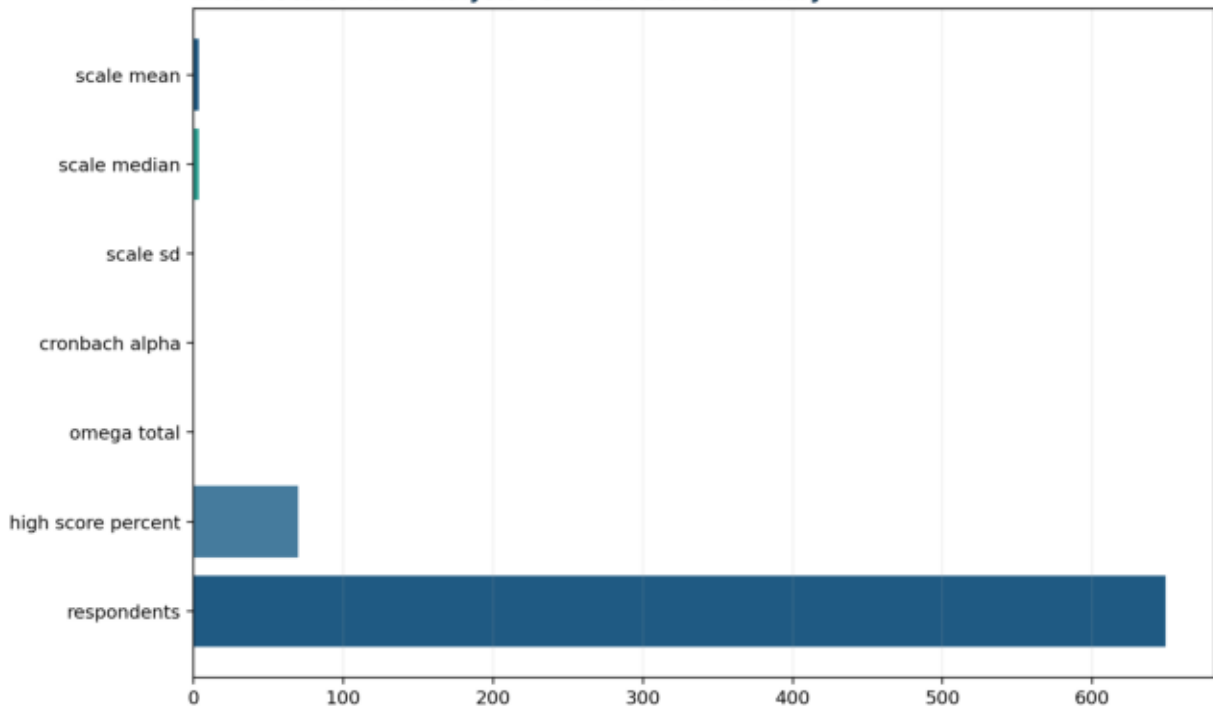
Item Total Diagnostics



Score Band Distribution



Likert Scale Data Analysis verified result summary



Primary Metrics

metric	value
scale_mean	3.67488
scale_median	3.66667
scale_sd	0.494934
cronbach_alpha	0.111763
omega_total	0.0201554
high_score_percent	69.7997
respondents	649

Aligned Item Summary

item	count	mean	std	min	25%	50%	75%	max
famrel	649	3.93066	0.955717	1	4	4	5	5
freetime	649	3.18028	1.05109	1	3	3	4	5
goout	649	3.1849	1.17577	1	2	3	4	5
Dalc_R	649	4.49769	0.924834	1	4	5	5	5
Walc_R	649	3.71957	1.28438	1	3	4	5	5
health	649	3.53621	1.44626	1	2	4	5	5

Item Total Diagnostics

item	corrected_item_total_r	alpha_if_deleted	mean	sd
famrel	0.226597	-0.0564858	3.93066	0.955717
freetime	0.151318	-0.0023642	3.18028	1.05109
goout	-0.10477	0.234087	3.1849	1.17577
Dalc_R	0.139144	0.0219086	4.49769	0.924834
Walc_R	-0.0331203	0.177823	3.71957	1.28438
health	-0.0104535	0.165338	3.53621	1.44626

Score Band Distribution

band	frequency
low	7
moderate	189
high	453