Limits of Agreement with Confidence Intervals

Standalone verified Python analysis

Test: Limits of Agreement with Confidence Intervals

Design: Numerical 95% agreement limits for G3 minus G2, including uncertainty in bias and each limit.

Variables: G2, G3

Null hypothesis: The G2-G3 bias is zero and the population agreement interval is acceptably narrow.

Formula: LOA=bias +/- 1.96 SD(d); CI_bias=bias +/- t SE_bias; CI_LOA=LOA +/- t SE_LOA.

Source rows: 649

Calculated metrics:

mean_bias: 0.3359013867488444

lower_limit: -2.169458382862478

upper_limit: 2.8412611563601664

bias_ci_low: 0.23737519464722542

bias_ci_high: 0.43442757885046335

limit_standard_error: 0.08579517243919689

n_pairs: 649

Independent reference values:

mean_bias: 0.3359013867488444

lower_limit: -2.169458382862478

upper_limit: 2.8412611563601664

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limit_standard_error: 0.08579517243919689

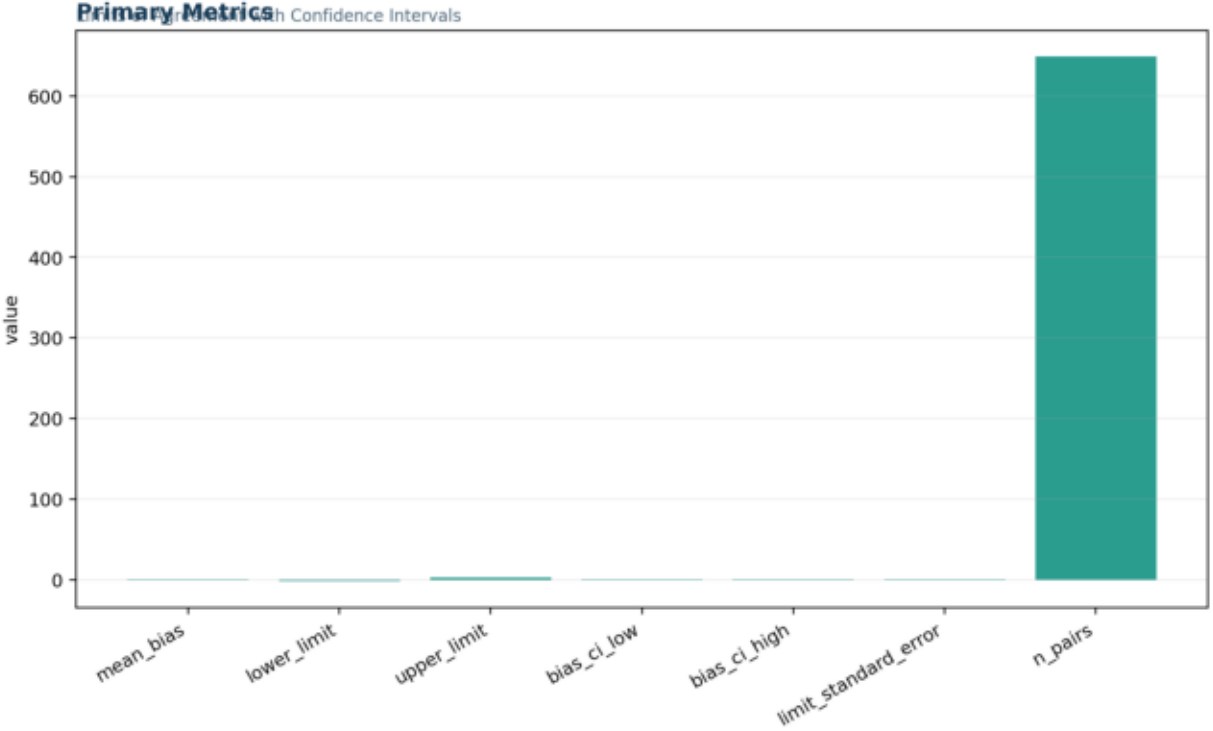
n_pairs: 649

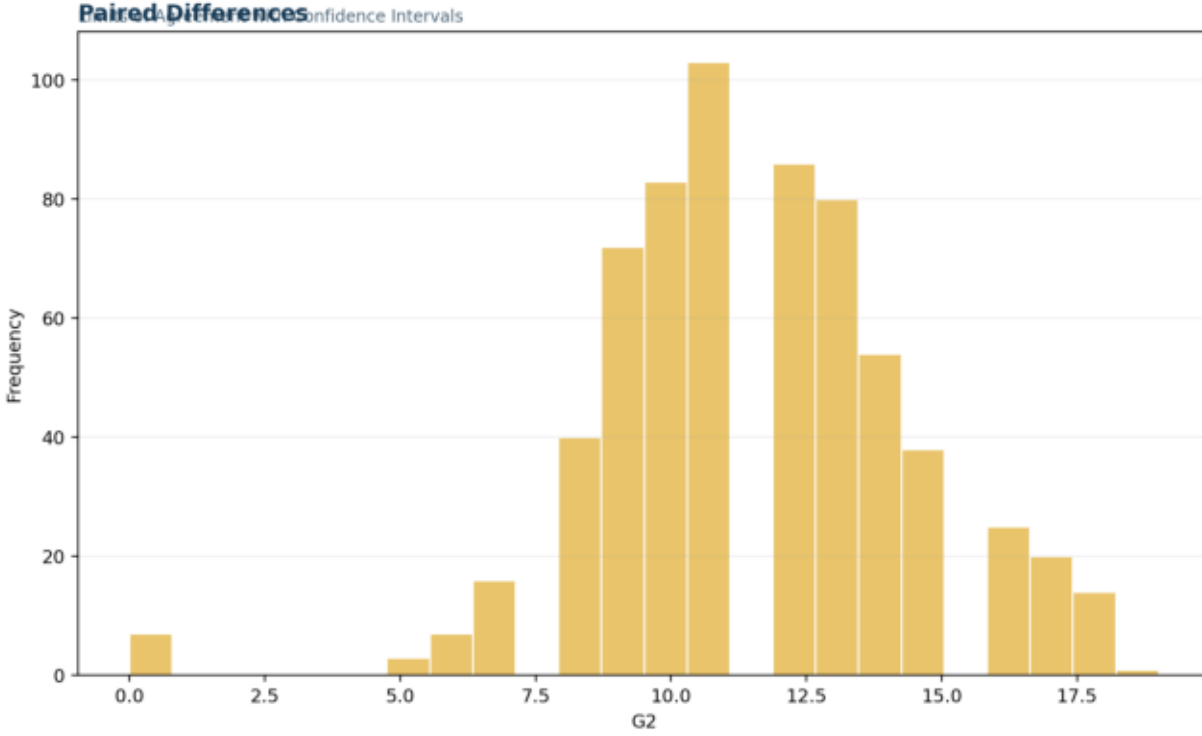
Interpretation:

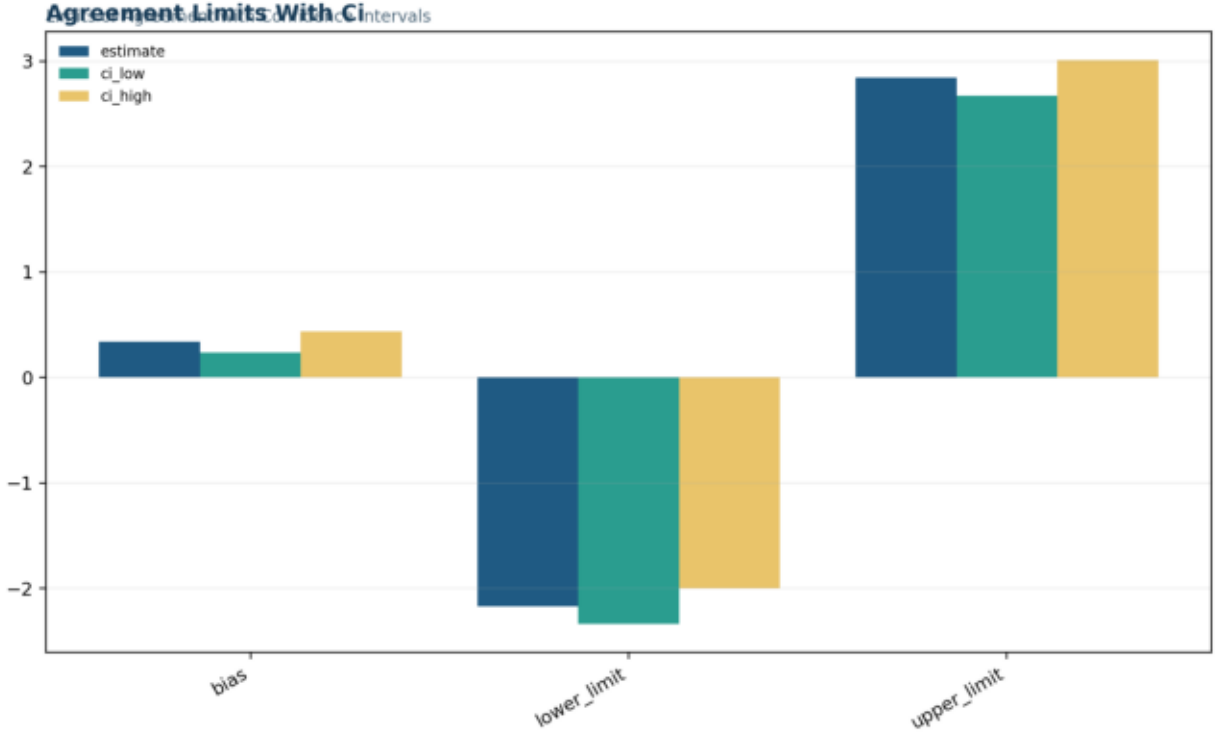
Confidence intervals quantify uncertainty in both bias and population limits.

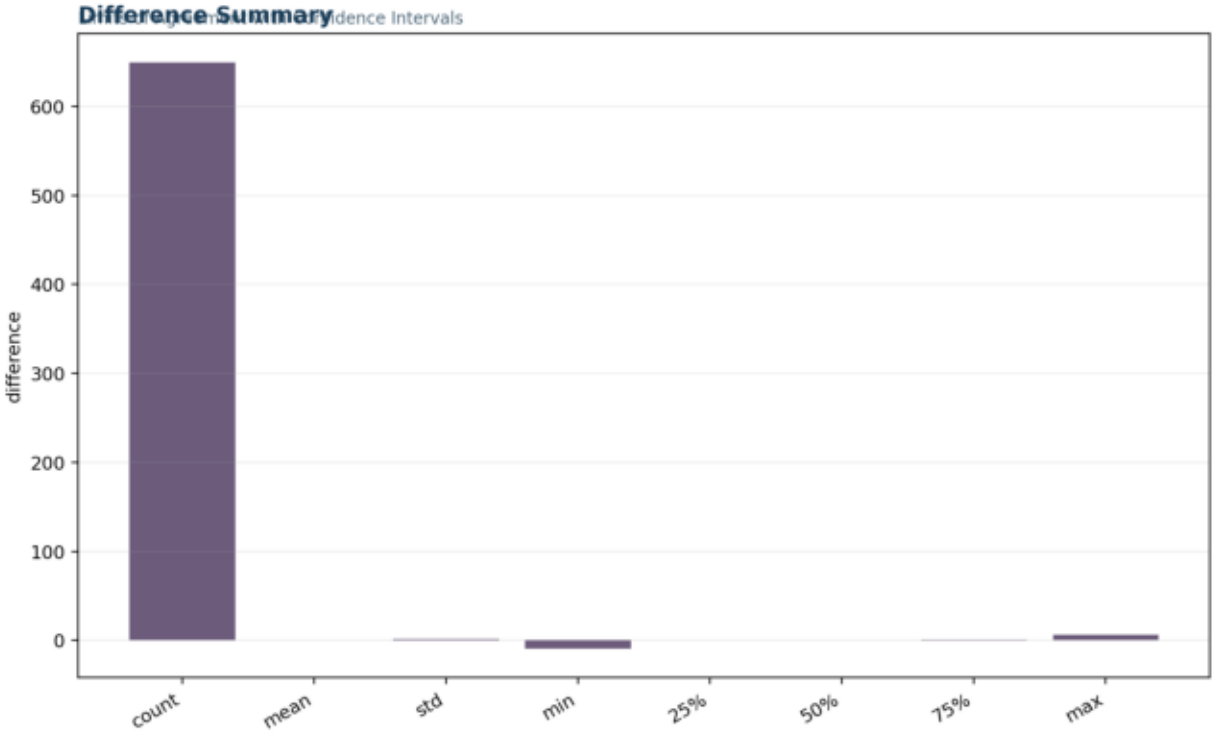
G3-G2 limits [-2.169458, 2.841261].

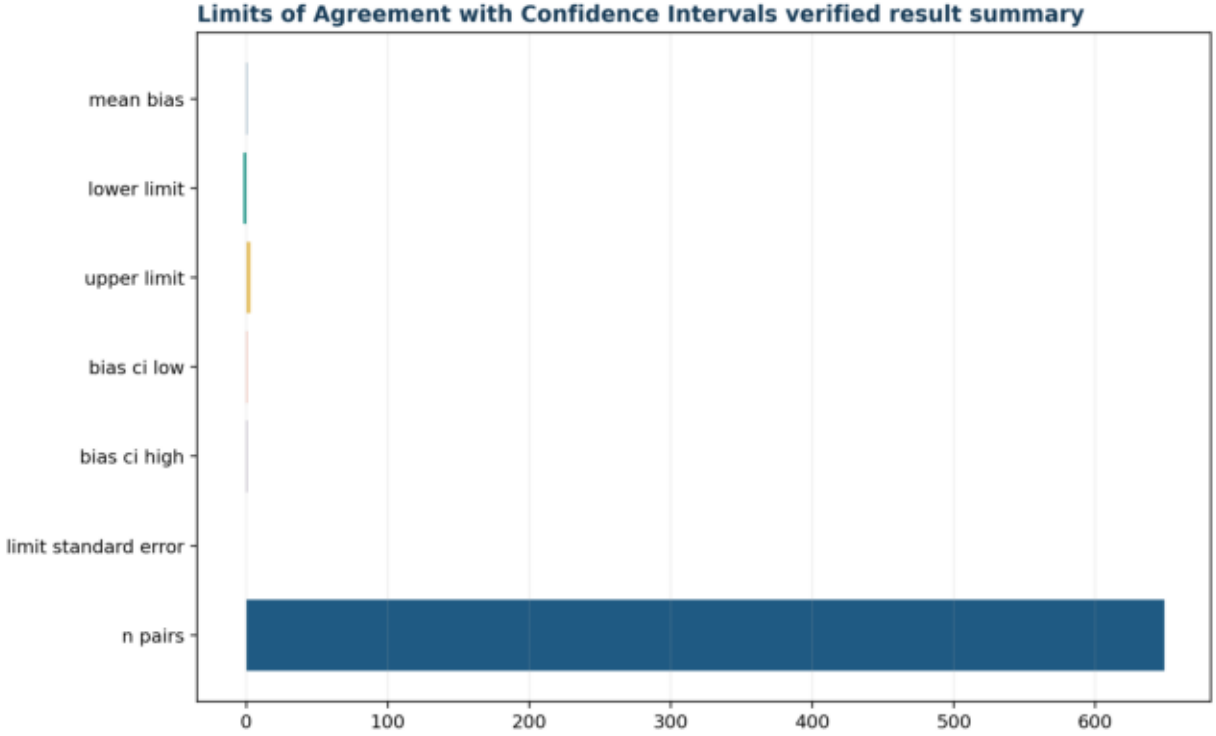
Primary Metrics




Paired Differences
Frequency
G2
0
20
40
60
80
100
0.0
2.5
5.0
7.5
10.0
12.5
15.0
17.5


Agreement Limits With Ci
estimate
ci_low
ci_high
3
2
1
0
−1
−2
bias
lower_limit
upper_limit


Difference Summary
Intervals
600
500
400
300
200
100
0
difference
count
mean
std
min
25%
50%
75%
max


Limits of Agreement with Confidence Intervals verified result summary
mean bias
lower limit
upper limit
bias ci low
bias ci high
limit standard error
n pairs
0
100
200
300
400
500
600

Primary Metrics

metric	value
mean_bias	0.335901
lower_limit	-2.16946
upper_limit	2.84126
bias_ci_low	0.237375
bias_ci_high	0.434428
limit_standard_error	0.0857952
n_pairs	649

Paired Differences

G2	G3	difference
11	11	0
11	11	0
13	12	-1
14	14	0
13	13	0
12	13	1
12	13	1
13	13	0
16	17	1
12	13	1
14	14	0
12	13	1
13	12	-1
12	13	1
14	15	1
17	17	0
13	14	1
14	14	0
8	7	-1
12	12	0
13	14	1
12	12	0
13	14	1
10	10	0
11	10	-1
11	12	1

Agreement Limits With Ci

quantity	estimate	ci_low	ci_high
bias	0.335901	0.237375	0.434428
lower_limit	-2.16946	-2.33793	-2.00099
upper_limit	2.84126	2.67279	3.00973

Difference Summary

index	difference
count	649
mean	0.335901
std	1.27824
min	-9
25%	0
50%	0
75%	1
max	6