Table 1 Psychometric Reliability Metrics and Statistical Methods for NSIR Validation)

Psychometric Reliability Metrics and Statistical Methods for NSIR Validation

	Concept/Metric	Description & Numerical Interpretation	Application in NSIR Validation
1.	Cronbach's Alpha	Measures internal consistency reliability of the scale (0 to 1 range). A score of 0.70 or higher is acceptable; 0.80+ is good; 0.90+ is excellent.	Used to confirm the 8 items of the NSIR are consistently measuring the same underlying constructs (e.g., Kinship, Trust).
2.	McDonald's Omega	An alternative reliability estimate that often provides a more accurate measure than alpha for complex scales.	Used as a robust measure to confirm internal consistency, particularly if EFA/CFA reveals a nuanced factor structure.
3.	Factor Analysis (EFA/CFA)	Statistical methods used to uncover or confirm the latent (unseen) grouping of items into specific factors/ dimensions.	Used to verify that the items align with the intended theoretical factors of Relational Kinship, Social Comfort, and Safety.
4.	Correlational Analysis	Uses correlation coefficients (r from -1 to +1) to measure the strength of linear relationships between variables.	Used to establish convergent validity by showing strong positive correlations between the NSIR and established measures like the PANAS or SBS scales.
5.	Multilevel Modeling	A statistical technique for analyzing data that has a hierarchical structure.	Used to analyze the multilevel data structures, accounting for individual item responses nested within individual participants and factors.

(Google, 2025; Author, 2025)