

Machine Learning Modeling of Family Communication Structures and Emotional Influences

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1. Round 1

1.1. Reviewer 1

Reviewer:

You claim that “most existing research relies on linear statistical methods” but do not provide a systematic or methodological citation supporting this claim. Add explicit methodological evidence or meta-analytic references that document this limitation in the field.

The final sentence “The aim of this study is to develop and validate a machine learning–based model...” should be reformulated into a set of concrete research objectives or hypotheses. The current formulation is descriptive rather than analytically directive.

The manuscript states: “A multi-stage cluster sampling strategy was implemented...” but does not describe the number of clusters, cluster sizes, or selection probabilities. These are essential for assessing sampling bias and external validity.

You argue that “machine learning approaches successfully captured complex interactions” without demonstrating the specific interactions uncovered. Provide at least one concrete example of a nonlinear or high-order interaction revealed by the models.

Although the sample is Taiwanese, the cultural implications of the findings are not explicitly interpreted. Discuss how collectivist cultural norms may have shaped communication structures and emotional expression patterns.

The limitation “self-report measures may introduce response bias” is too general. Identify which constructs are most susceptible to social desirability or recall bias and how this may have influenced model performance.

Response: Revised and uploaded the manuscript.

1.2. Reviewer 2

Reviewer:

The exclusion criterion “families with a documented history of severe psychiatric illness” requires operational definition. Please specify which diagnoses, time frame, and diagnostic instruments were used to determine exclusion.

The phrase “All instruments underwent translation and back-translation procedures” should include the number of translators, their qualifications, inter-rater agreement statistics, and whether any items were culturally adapted.

You state “Internal consistency coefficients across all major constructs exceeded accepted reliability thresholds.” Please provide the exact Cronbach’s alpha values for each scale in this paragraph rather than deferring to Table 1.

The description of the neural network model is insufficient. Provide architecture details: number of layers, neurons per layer, activation functions, optimizer, learning rate, regularization methods, and stopping criteria.

The claim “nonlinear ensemble and neural network models substantially outperformed traditional regression approaches” should be supported by formal statistical comparison (e.g., paired t-tests or bootstrapped confidence intervals for performance metrics).

Clarify whether the reported importance values (e.g., Emotional Warmth = 0.31) are normalized across models or derived from a single algorithm. If aggregated, describe the aggregation procedure.

Model fit indices (CFI, TLI, RMSEA, SRMR, χ^2/df) are entirely absent. These must be reported to justify the adequacy of the structural model.

The sentence “These results advance the existing literature” is conceptually vague. Specify precisely which theoretical models or empirical findings are extended and in what measurable way.

Response: Revised and uploaded the manuscript.

2. Revised

Editor’s decision after revisions: Accepted.

Editor in Chief’s decision: Accepted.