

CatBoost Classification of High-Risk Perfectionism Using Conditional Self-Worth, Fear of Evaluation, and Cognitive Fusion

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1. Round 1

1.1. Reviewer 1

Reviewer:

In the introduction paragraph discussing university students, the sentence “University students represent a particularly important population for studying high-risk perfectionism because they are often exposed to simultaneous academic, social, developmental, and future-oriented pressures” is strong but would benefit from greater contextualization in Indonesia. The manuscript should include a brief explanation of why Indonesian university students may be especially relevant, such as academic competition, family expectations, collectivist interpersonal norms, or social evaluation within educational settings.

In the CatBoost analysis paragraph, the manuscript reports a 70/30 stratified train-test split and five-fold cross-validation, but hyperparameter tuning details remain incomplete. The authors should specify the search strategy, such as grid search, random search, Bayesian optimization, or manual tuning, and should report the final selected values for learning rate, depth, iterations, L2 regularization, class weights, and early stopping criteria.

In the findings section, Table 1 reports statistically significant differences between high-risk and non-high-risk groups, but the authors should acknowledge that perfectionistic concerns were used to define group membership. The very large difference

in perfectionistic concerns is therefore tautological and should not be interpreted as an independent empirical finding. The interpretation should focus more strongly on conditional self-worth, fear of negative evaluation, and cognitive fusion.

Authors revised and uploaded the document.

1.2. Reviewer 2

Reviewer:

In the introduction, the discussion of conditional self-worth is theoretically relevant, but the manuscript should better connect this construct to the machine-learning classification framework. The paragraph explains why conditional self-worth is associated with perfectionism, yet it does not fully explain why it may improve predictive classification. The authors should add a short rationale that conditional self-worth may help distinguish high-risk students from students who simply hold high standards.

In the introduction paragraph on fear of evaluation, the manuscript states that “Fear of evaluation is another key factor in understanding maladaptive perfectionism.” This claim is well aligned with the study model, but it should specify whether the construct is fear of negative evaluation or broader fear of evaluation. The methods and findings use “fear of negative evaluation,” so the terminology should be made consistent throughout the manuscript.

In the introduction paragraph on cognitive fusion, the example thoughts such as “I must perform perfectly” and “mistakes prove that I am not good enough” are conceptually useful. However, the manuscript should avoid overgeneralizing cognitive fusion as if it were specific only to perfectionism. The authors should explain that cognitive fusion is a broader psychological inflexibility process that may become perfectionism-relevant when fused thoughts concern failure, standards, approval, and self-worth.

In the methods section, the paragraph “The final sample consisted of 436 Indonesian students” should provide more detail about sampling distribution. The authors should report the provinces or regions represented, the number of universities involved, the proportion of participants from public and private universities, and whether recruitment was concentrated in one area or distributed nationally. This is important for evaluating external validity.

In the methods section, the study design is described as “cross-sectional, predictive, and applied machine-learning.” This is acceptable, but the authors should clarify whether the study is methodological, correlational-predictive, or screening-oriented. A machine-learning study can be framed differently depending on whether the main contribution is algorithmic performance, psychological theory testing, or applied risk detection.

In the participants paragraph, the exclusion criterion “completed the survey in an unrealistically short time” needs operational definition. The authors should specify the minimum completion-time threshold used, how it was determined, how many cases were excluded for this reason, and whether attention-check items were included. Without these details, the data-cleaning procedure is difficult to reproduce.

In the data collection tools section, the manuscript lists well-established instruments, but it should report reliability coefficients from the present sample. For each scale, including perfectionistic concerns, conditional self-worth, fear of negative evaluation, and cognitive fusion, Cronbach’s alpha or McDonald’s omega should be reported. Reliance only on previous validation studies is insufficient because reliability is sample-dependent.

In the tools section, the sentence “The upper quartile of the distribution was used to define the high-risk perfectionism class” should be moved or repeated in the data analysis section with more technical detail. The authors should report the exact cutoff score used, the number of students above and below the threshold, and whether the quartile cutoff was determined before or after train-test splitting. To avoid information leakage, the cutoff procedure should be clearly described.

In the data analysis section, the manuscript states that “median imputation” was used for minimal missingness. The authors should report the percentage of missing data per variable and justify why median imputation was selected instead of multiple imputation or model-based handling. If missingness was extremely low, the authors should state this explicitly and indicate whether results changed after listwise deletion.

Authors revised and uploaded the document.

2. Revised

Editor's decision after revisions: Accepted.

Editor in Chief's decision: Accepted.