

## Machine Learning-Based Prediction of Emotional Eating Patterns in Adolescents Using Psychological and Lifestyle Variables

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### Reviewers

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### 1. Round 1

#### 1.1. Reviewer 1

Reviewer:

In the sentence “Adolescence represents a particularly sensitive window for the development and consolidation of emotional eating patterns”, the authors refer to neurodevelopmental changes but do not specify which neural systems are most relevant. Adding brief references to reward circuitry or executive control maturation would strengthen the theoretical grounding.

The paragraph beginning with “Beyond individual psychopathology, emotional eating is embedded within broader psychosocial and lifestyle contexts” is comprehensive; however, family and parenting variables are later excluded from the model. Please justify why these variables are theoretically discussed but empirically omitted.

The interpretive summaries are helpful, but the manuscript would benefit from reporting whether SHAP values were averaged across cross-validation folds or derived from a single fitted model.

Authors uploaded the revised manuscript.

#### 1.2. Reviewer 2

Reviewer:

The claim that “much of the existing research relies on traditional statistical approaches” would benefit from at least one concrete example (e.g., linear regression, SEM) to clearly position the methodological contribution of the present study.

The stated aim is clear, but it remains broad. Please consider explicitly stating whether the primary contribution is predictive performance, explainability, or clinical applicability, as this will guide interpretation of the results.

The manuscript refers to a “validated adolescent-adapted emotional eating scale” without naming the instrument. For scientific clarity, the scale name, number of items, response format, and reliability coefficients in the current sample should be reported.

While the authors state that instruments were “previously translated and validated for Polish samples”, no citations are provided at this point. Please add references or report psychometric indices to support this claim.

The manuscript states that “nested cross-validation” was used, but the number of folds for inner and outer loops is not specified. This information is essential for methodological rigor.

In Table 1, emotional eating scores are reported as continuous means, yet later analyses imply classification. Please clarify how emotional eating was dichotomized (e.g., median split, clinical cutoff) and justify the chosen threshold.

While performance metrics are clearly presented, no confidence intervals are reported. Please consider adding 95% confidence intervals for AUC values to convey model stability.

The ranking of predictors is informative; however, the method used to compute “relative importance” is not explicitly described. Please clarify whether this reflects gain, frequency, or SHAP-based aggregation.

Authors uploaded the revised manuscript.

## 2. Revised

Editor's decision after revisions: Accepted.

Editor in Chief's decision: Accepted.