PUBLISHING INSTITUTE
Journal Website

Article history:
Received 28 July 2025
Revised 10 November 2025
Accepted 10 November 2025
Published 10 December 2025

Journal of Adolescent and Youth Psychological Studies

Open peer-review report

E-ISSN: 2981-2526

Psychological Resilience in Youth: A Machine Learning Analysis of Protective Factors and Stress Exposure

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1. Round 1

1.1. Reviewer 1

Reviewer:

In the paragraph beginning “Resilience is increasingly conceptualized as a multidimensional and contextually embedded capacity”, the manuscript reviews individual and relational factors but does not explicitly justify the exclusion of biological or neurodevelopmental resilience markers. A brief rationale for this analytical boundary is recommended.

Table 1 reports means and percentages clearly; however, the manuscript should explicitly state the scale range (e.g., 1–5) for all psychological variables to aid interpretability of the reported means.

In Table 2, the reported R^2 values are impressive. Please clarify whether these are cross-validated R^2 estimates or derived from the training folds, as this distinction is crucial for evaluating generalizability.

The manuscript reports relative importance percentages but does not explain how multicollinearity among predictors was handled. Please clarify whether correlated features were assessed or grouped prior to importance estimation.

The values reported across stress levels suggest monotonic increases, but no confidence intervals are shown. Please indicate whether uncertainty estimates were examined and how robust these interaction effects were across cross-validation folds.

Authors uploaded the revised manuscript.

1.2. Reviewer 2

Reviewer:

The authors state that “traditional regression-based methods typically assume additive and linear relationships”. Please add one concrete example (with citation) demonstrating how such assumptions may misestimate resilience effects, strengthening the methodological argument for machine learning.

The stated aim is clear, but it would benefit from explicitly indicating whether the primary contribution is predictive accuracy, theoretical insight, or applied classification. Clarifying this will help readers evaluate the study’s contribution more precisely.

The sentence “minor linguistic adaptations were reviewed by bilingual experts” would benefit from a short description of the adaptation protocol (e.g., forward–backward translation, pilot testing) to strengthen methodological rigor.

The use of “multiple imputation with chained equations” is appropriate; however, the manuscript should report the number of imputations, convergence diagnostics, and the proportion of missing data per variable.

While several algorithms are listed, the rationale for selecting gradient boosting as the final model is presented only post hoc. Please clarify whether any pre-registered or theory-driven criteria guided model prioritization.

Authors uploaded the revised manuscript.

2. Revised

Editor’s decision after revisions: Accepted.

Editor in Chief’s decision: Accepted.

JAYPS Adolescent and Youth Psychological Studies
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