Explainable AI Modeling of Hope in Youth Using Feature Attribution of Optimism, Goal Orientation, and Family Support

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1. Round 1

1.1. Reviewer 1

Reviewer:

Paragraphs two through four of the Introduction repeatedly emphasize the role of family support using similar language. These sections would benefit from consolidation into a more focused theoretical synthesis.

The manuscript states that sample size was determined using power analysis, yet it does not report the assumed effect size, significance level, or target statistical power. These parameters should be explicitly documented.

Figure 1 lacks sufficient annotation. Axis labels, color legends, and scale explanations should be added so that the figure can be interpreted independently of the text.

Several statements in the Discussion imply causal relationships (e.g., that family support "produces" improvements) despite the cross-sectional design. Language should be revised to reflect associative inference.

The Discussion would benefit from a clearly articulated theoretical model of youth hope that integrates the XAI findings into a coherent conceptual framework.

Authors uploaded the revised manuscript.

1.2.   Reviewer 2

Reviewer:

Participants aged 15–24 are treated as a single analytic group. The manuscript should provide a theoretical justification for combining adolescents and emerging adults within the same model.

The Measures section lists the instruments used but omits essential details such as the number of items, response format, and example items. At minimum, item counts and Likert scale anchors should be reported.

The manuscript notes that confirmatory factor analyses were conducted, but does not present fit indices. Key model-fit statistics should be included to support construct validity claims.

The choice of XGBoost as the primary model is justified only by predictive accuracy. A short discussion of interpretability trade-offs relative to the other algorithms would strengthen methodological transparency.

Table 3 reports relative importance but does not describe the distribution or range of SHAP values across participants. Additional numerical detail would improve interpretability.

In Table 4, interaction effects are labeled as "High" or "Moderate" without quantitative criteria. The thresholds used to define these categories should be explicitly stated.

Authors uploaded the revised manuscript.

2.   Revised

Editor's decision after revisions: Accepted.
Editor in Chief's decision: Accepted.