

Machine-Learning Identification of Subtypes of Adolescent Perfectionism Based on Concern Over Mistakes, Parental Expectations, Cognitive Rigidity, and Negative Affect

Nathaniel. Brooks¹, Lena. Hoffmann^{2*}, Miguel. Figueiredo³

¹ Department of Cognitive Psychology, McGill University, Montreal, Canada

² Department of Cognitive Psychology, Heidelberg University, Heidelberg, Germany

³ Department of Behavioral Psychology, University of Lisbon, Lisbon, Portugal

* Corresponding author email address: lena.hoffmann@psychologie.uni-heidelberg.de

Editor

Ahmad Amani
Associate Professor, Counseling
Department, University of
Kurdistan, Sanandaj, Iran
a.amani@uok.ac.ir

Reviewers

Reviewer 1: Mohammad Salehi
Associate Professor, Department of Educational Management, Sari Branch, Islamic
Azad University, Sari, Iran. Email: drsalehi@iausari.ac.ir
Reviewer 2: Mohammadreza Zarbakhsh Bahri
Associate Professor, Department of Psychology, Tonekabon Branch, Islamic Azad
University, Tonekabon, Iran. Email: M.Zarbakhsh@Toniau.ac.ir

1. Round 1

1.1. Reviewer 1

Reviewer:

The sampling strategy and sample description are somewhat underspecified: while the total N and the fact that participants were drawn from several districts in a single Western European country are reported, the authors should provide more detailed information about school types, socioeconomic background, migration status, and participation rate, in order to evaluate representativeness and potential selection biases in this “large, representative” adolescent sample.

The measurement section requires greater transparency and psychometric detail; the constructs (concern over mistakes, parental expectations, cognitive rigidity, negative affect) are well motivated, but the manuscript should explicitly name the instruments used, report internal consistency coefficients for the present sample, justify any scale adaptations, and consider testing measurement invariance across key demographic subgroups if group comparisons or gender/age interpretations are made later in the paper.

While the authors frame the findings as having substantial clinical implications, this translational step feels somewhat speculative in the absence of longitudinal data or clinical outcomes; I encourage the authors to temper the clinical claims, more carefully delimit which inferences are supported by the data, and perhaps provide a more concrete, mechanistically grounded

discussion of how these profiles could tentatively inform assessment or intervention without implying that they already have validated predictive utility for disorders such as eating pathology or self-injury.

The treatment of cultural context and generalizability is rather brief; given that perfectionism, parental expectations, and emotional expression are culturally shaped, the authors should expand their discussion of how norms in the sampled country (e.g., in terms of academic tracking, parenting styles, achievement pressure) might have influenced the profile structure, and highlight the need for replication in non-Western, more collectivistic, and clinical samples before generalizing the specific class configuration and risk implications.

Authors uploaded the revised manuscript.

1.2. Reviewer 2

Reviewer:

The analytical strategy is generally rigorous, particularly the use of Gaussian Mixture Modeling and multiple information criteria; nonetheless, the description of model selection is somewhat terse, and the authors should include a table reporting AIC, BIC, adjusted BIC, entropy, and BLRT results for each candidate solution (e.g., 2–6 classes), together with a clearer narrative justification for preferring the 3-class model over higher-class models beyond the argument of small and “unstable” classes.

A major limitation is the cross-sectional design, which is acknowledged but not fully reflected in the language of the Discussion: at several points the interpretation seems to imply directional or developmental processes (e.g., parental expectations “leading to” negative affect or cognitive rigidity), and I would strongly recommend systematically rephrasing such statements to emphasize association and profile description rather than causality or temporal precedence.

The reliance exclusively on adolescent self-report for all key constructs raises concerns about shared method variance and potentially biased reporting, particularly given the socially evaluative nature of perfectionism; the authors should discuss whether any validity checks or response-bias indicators were used, and more explicitly acknowledge how social desirability or impression management might differentially affect the identified profiles, as well as suggest concrete multi-informant or behavioral measures for future research.

The presentation and interpretation of the latent classes would benefit from more detail and restraint: the labels (e.g., “Externally Pressured,” “Maladaptive”) are clinically evocative but somewhat strong given the limited indicator set, and the manuscript should provide a clear figure or table with standardized means (or z-scores) for each variable by class, justify the chosen labels in light of these patterns, and avoid over-pathologizing profiles that may reflect normative or contextually adaptive responses in certain environments.

Authors uploaded the revised manuscript.

2. Revised

Editor’s decision after revisions: Accepted.

Editor in Chief’s decision: Accepted.