

## Identifying Cultural Patterns in Parenting Beliefs Through Clustering Algorithms

Naledi. Molefe<sup>1</sup>, Tamar. Gelashvili<sup>2\*</sup>, Shantel. Rowe<sup>3</sup>

<sup>1</sup> Department of Psychology, University of Botswana, Gaborone, Botswana

<sup>2</sup> Department of Counseling Psychology, Ilia State University, Tbilisi, Georgia

<sup>3</sup> Department of Psychology, University of the West Indies, Kingston, Jamaica

\* Corresponding author email address: tamar.gelashvili@iliauni.edu.ge

### Editor

Sergii Boltivets  
Chief Researcher of the Department of Scientific Support of Social Formation of Youth. Mykhailo Drahomanov University, Ukraine  
sboltivets@ukr.net

### Reviewers

**Reviewer 1:** Mehdi Ghezelsfloo  
Assistant Professor, Department of Psychology, Gonbadkavos University, Gonbadkavos, Iran. Email: m.ghezelsfloo@gonbad.ac.ir  
**Reviewer 2:** Manijeh Daneshpour  
Department of Couple and Family therapy, Alliant International University, California, United States of America. mdaneshpour@alliant.edu

## 1. Round 1

### 1.1. Reviewer 1

Reviewer:

In the Measures subsection, the sentence “The primary instrument was the Parenting Beliefs and Practices Scale (PBPS)... consists of 45 items” would benefit from a more precise psychometric justification; I recommend reporting reliability coefficients (Cronbach’s alpha) specifically for your sample, not only citing prior studies, as internal consistency can vary across cultural contexts.

In the Measures subsection, the statement “All instruments were translated and back-translated to ensure linguistic and conceptual equivalence” is methodologically appropriate but insufficiently documented; please provide details on the translation protocol (e.g., number of translators, reconciliation process, pilot adjustments) and report any validity checks such as CFA results in the Georgian sample.

In the Results narrative, the sentence “The relatively high Calinski–Harabasz score further supports the internal validity” lacks interpretive grounding; please provide a comparative reference or explain what constitutes a “high” score in this analytical context.

In the PCA visualization description, the statement “The dispersion patterns also indicated minimal overlap between clusters” should be supported quantitatively; consider reporting explained variance of principal components and possibly cluster overlap indices or projection metrics.

Response: Revised and uploaded the new document.

### 1.2. Reviewer 2

Reviewer:

In the Data Analysis section, the phrase “Feature standardization was applied prior to clustering to ensure comparability across variables” is critical but lacks specification; please clarify the exact scaling method used (e.g., z-score normalization, min-max scaling) and justify its appropriateness for the clustering algorithms employed.

In the Data Analysis section, the sentence “Cluster validity and stability were further assessed through internal validation measures and cross-validation techniques” is vague; I recommend explicitly detailing the cross-validation approach (e.g., bootstrapping, split-sample validation) and providing quantitative stability metrics to strengthen methodological robustness.

In the Findings section, the statement “The relatively balanced standard deviations across variables indicate acceptable variability without extreme dispersion” is interpretive but not statistically justified; consider reporting skewness and kurtosis or normality tests to substantiate claims about distributional adequacy.

In Table 1 interpretation, the sentence “Emotional socialization and collectivism orientation exhibited the highest mean values” would benefit from inferential comparison; I suggest including statistical tests (e.g., repeated measures ANOVA or paired comparisons) to determine whether these differences are statistically significant rather than descriptively inferred.

In the Results section, the statement “Cluster 1 is characterized by high parental authority...” is conceptually meaningful but lacks statistical validation; please include statistical comparisons across clusters (e.g., ANOVA with post hoc tests) to confirm that differences in cluster centroids are statistically significant.

In the cluster labeling process, the sentence “Cluster 3 represents a balanced profile” raises concerns about subjectivity; I recommend including a systematic labeling criterion (e.g., threshold-based interpretation or standardized scores) to reduce interpretive bias in assigning conceptual labels to clusters.

In the Cluster Validation section, the interpretation “Silhouette coefficient of 0.53 suggests moderate separation” is acceptable, but I suggest contextualizing this value relative to benchmarks in similar psychosocial clustering studies to strengthen the argument for adequacy of clustering performance.

Response: Revised and uploaded the new document.

## 2. Revised

Editor’s decision: Accepted.

Editor in Chief’s decision: Accepted.