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Using Machine Learning to Identify Latent Profiles of Somatosensory Amplification and Catastrophic Misinterpretation of Bodily Cues in Psychosomatic Patients

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Ali Aghaziarati Department of Psychology and Counseling, KMAN Research Institute, Richmond Hill, Ontario, Canada aliaghaziarati@kmanresce.ca	**Reviewer 1:** Sabine Kraus Department of Psychology, University of Nevada, Las Vegas, NV, USA. Email: sabine_kraus10@gmail.com **Reviewer 2:** Wioleta Karna Department of Social Studies, Jesuit University Ignatianum, Krakow, Poland. wioletakarna@uj.edu.pl

1. Round 1

1.1. Reviewer 1

Reviewer:

The choice of measures (SSAS and BSQ) is appropriate and well aligned with the constructs of interest, and the authors correctly highlight the need for cultural and linguistic adaptation; nonetheless, the manuscript needs to report psychometric properties in this specific sample (e.g., internal consistency coefficients, factor structure, and ideally some indication of construct validity) and to describe the adaptation process in more detail (translation/back-translation procedures, expert review, pilot testing) to support the claim that the instruments function equivalently in this context.

The analytic strategy, centered on Gaussian mixture modeling and comparison of 1–5 profile solutions using AIC, BIC, adjusted BIC, LMR-LRT, BLRT, and entropy, is methodologically sound and appropriate for the research question, but the reporting is incomplete: the manuscript should provide the full set of fit indices, entropy values, and, importantly, class sizes (n and %) and average posterior probabilities for each profile in a clearly organized table to allow readers to evaluate the robustness and interpretability of the selected three-profile solution.

Given the emphasis on cultural context and the use of adapted instruments in a multilingual setting, it is a missed opportunity that the manuscript does not examine or at least discuss measurement invariance and potential differential functioning of SSAS and BSQ across key demographic subgroups (e.g., gender, language groups), nor does it address how cultural norms around bodily symptom reporting and distress expression may influence both somatosensory amplification and catastrophic interpretations, which would be valuable for positioning the work in cross-cultural psychosomatic research.

From a reporting and stylistic standpoint, the manuscript would benefit from clearer structuring and increased concision: the introduction and parts of the discussion are quite dense, with long, concept-heavy sentences that may challenge readers unfamiliar with the constructs, and the authors could improve readability by using subheadings, shorter paragraphs, and explicit signposting of the logic from theory to hypotheses, from methods to results, and from findings to clinical implications.

Authors revised the manuscript and uploaded the document.

1.2. Reviewer 2

Reviewer:

A major concern is the pervasive presence of missing numerical values throughout the results (e.g., mean age, standard deviations, illness duration, correlation coefficients with p-values, LPA fit indices, F and χ^2 statistics, degrees of freedom, and effect sizes), which substantially undermines the transparency, reproducibility, and interpretability of the findings; these omissions must be comprehensively corrected and cross-checked against the underlying analyses before the manuscript can be considered for publication.

The identification of three qualitatively meaningful profiles (low, moderate, and severe symptom burden) and their differentiation on gender, illness duration, and employment status is conceptually compelling and clinically important; however, the characterization of these profiles should be enriched by reporting more granular clinical information (e.g., distribution of specific diagnoses, comorbidities, and possibly severity indices) and by providing standardized effect sizes and confidence intervals for between-profile comparisons to contextualize the magnitude of observed differences.

The discussion offers a thoughtful integration of the findings with existing literature on catastrophizing, neuroticism, self-efficacy, and emotional dysregulation, and convincingly links the severe profile to greater impairment and chronicity; nevertheless, this section would be strengthened by a more explicit and systematic treatment of the study's limitations (cross-sectional design, reliance on self-report measures, purposive sampling from urban clinics, potential cultural/measurement invariance issues) and by more cautious language regarding causal inferences and "precision medicine" implications.

Authors revised the manuscript and uploaded the document.

2. Revised

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

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