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# Personality-Driven Adaptive Psychosomatic Treatment Planning via Artificial Intelligence

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| Editor | Reviewers |
|---|---|
| Marina Gonalons-Pons<br>Department of Psychology, University of Pennsylvania, McNeil 217, 3718 Locust Walk, Philadelphia<br>marina-gonpons@sas.upenn.edu | **Reviewer 1:** Jiantang. Yang<br>Coventry University London–University House, UK. Email: jian.yang@sheffield.ac.uk<br>**Reviewer 2:** Derek Péloquin<br>School of Psychology, University of Ottawa, Ottawa, Ontario, Canada. derek.peloquin@uottawa.ca |

## 1. Round 1

### *1.1. Reviewer 1*

Reviewer:

The paragraph starting “Within this broader psychosomatic landscape, chronic pain and persistent somatic symptoms illustrate…” is theoretically rich, but it conflates heterogeneity explanation with intervention implications. Consider separating explanatory mechanisms (affect, appraisal) from personalization rationale to improve conceptual clarity.

In the paragraph discussing Taiwan (“Importantly, psychosomatic practice in Taiwan is currently engaging with integrated diagnostic approaches…”), the manuscript would benefit from briefly explaining why Taiwan represents a particularly suitable or novel setting for AI-driven psychosomatic personalization compared to other health systems.

The paragraph beginning “Recent advances in generative AI and large language models extend this potential…” raises important ethical concerns. However, the manuscript should more explicitly articulate how these ethical risks were operationally mitigated in the present study (e.g., constraints on recommendation autonomy, clinician override mechanisms).

The interpretation of Table 4 is compelling; however, the manuscript should clarify whether treatment modality recommendations were mutually exclusive or probabilistic. This distinction has important clinical implications.

The description accompanying Figure 1 is conceptually helpful, but the figure itself would benefit from clearer labeling of feedback loops (e.g., "patient response input," "model updating") to emphasize adaptive learning rather than static recommendation.

In the opening discussion paragraph, the authors state that personality traits are "central organizing variables." While supported by citations, the manuscript should briefly acknowledge alternative explanatory frameworks (e.g., social determinants, illness beliefs) to avoid theoretical over-commitment.

The paragraph interpreting Cluster A ("The largest cluster, characterized by high neuroticism…") is strong, but similar depth is not consistently applied to Clusters C and D. Consider expanding these sections for symmetry and interpretive balance.

Authors revised the manuscript and uploaded the document.

### *1.2. Reviewer 2*

Reviewer:

The final sentence of the introduction ("The aim of this study was to develop and evaluate…") is appropriate, but it would be strengthened by specifying whether the primary contribution is methodological (model development), clinical (decision support), or empirical (cluster validation).

In "This study employed a mixed-methods, model-development design…", the term "mixed-methods" is used broadly. Please clarify which qualitative components were included (e.g., clinician input, expert labeling, interpretive validation), or otherwise reconsider whether the design is more accurately described as multimodal quantitative.

The paragraph describing purposive sampling would benefit from a clearer justification of sample size adequacy for machine learning training. Consider adding a rationale based on feature-to-case ratio or learning curve stabilization rather than stating "data sufficiency requirements" in general terms.

In the sentence "Personality characteristics were assessed using a validated multidimensional personality inventory…", the specific instrument name, language version, reliability coefficients, and cultural validation in Taiwanese populations should be explicitly reported to ensure psychometric rigor.

The "Data Analysis" section is well organized, but the paragraph beginning "In the model development phase…" would benefit from a flow diagram or algorithmic pseudo-pipeline to visually clarify the sequencing from clustering to prediction to recommendation.

The paragraph interpreting Table 1 states that elevated neuroticism "justified the focus on personality-informed adaptive treatment planning." This is an interpretive claim and may be more appropriate for the Discussion rather than the Results section.

In Table 2, the manuscript does not report cluster validation metrics (e.g., silhouette score, Davies–Bouldin index). Including these indices would substantially strengthen the methodological credibility of the unsupervised learning results.

While Table 3 reports strong metrics, the absence of a baseline comparison (e.g., random assignment, clinician-only matching) limits interpretability. Consider adding a reference benchmark to demonstrate added value of the AI model.

Authors revised the manuscript and uploaded the document.

## 2. Revised

Editor's decision: Accepted.

Editor in Chief's decision: Accepted.



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